

AUGUST 1985 £1.10

MODEL

BOATS



MODEL
MAGAZINE

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Wileco Twin Cylinder Engine + Boiler	£29.95
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Nautic	£28.95
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All motors, shafts, couplings available.	

ASSTD. CHARGERS

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Switch Harness	£4.15
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(All equipment supplied with new plugs unless you require old type).	

BOOKS & CATALOGUES (All Post Paid)

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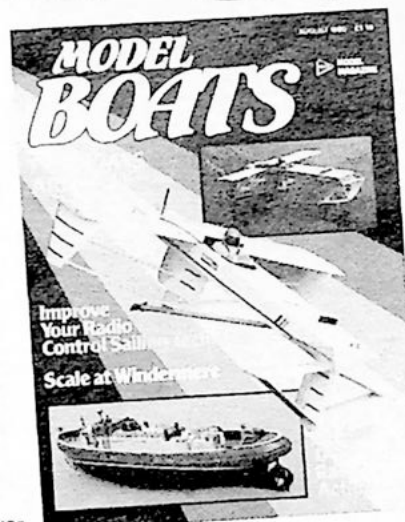
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MODEL BOATS

August 1985
Volume 35
No. 414

Publisher Tony Dowdeswell
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Graphics Jenny Hine
Editorial Secretary Liz Silver
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Chairman and Chief Executive Jim Connell



Cover

The unusual and interesting Foil Boat for two function R/C and electric power, this month's plan feature, is photographed by the designer and builder F. J. Macclay. Inset is Calder Craft's latest project, due for release in the Autumn, a 1950s river and estuary tug called Riverman, at 1/2 in. to 1 ft. scale, 30 in. long, vacuum formed hull for single screw steerable Kort nozzle.

Correspondence anticipating a reply must be accompanied by a stamped, self-addressed envelope or equivalent. Forthcoming events should be notified at least seven weeks before publication date and are included as space permits. Prospective contributors are invited to send a self-addressed, stamped envelope for copy of our 'Model Boats Guide to Contributors.'

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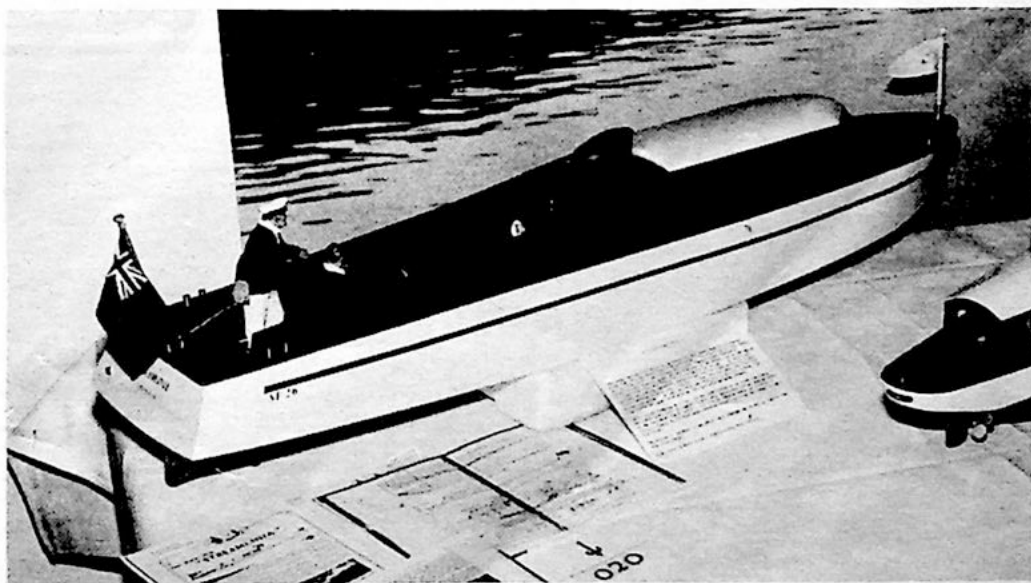
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Keith Burdett's replica Streamlinia was fourth in its class at the Windermere Steamboat Museum Regatta in May. Full photo report on page 422. Causes the judges a slight dilemma. How do you judge a 1:1 scale model of an earlier commercial model?



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Introducing Model Marine Steam

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Airbrushing & Spray Painting

Manual

Radio Controlled Fast Electric Power

Boats

Introducing Radio Control Model

Boats

Plans Handbook Boats & Cars

Billings Catalogue

Deans Marine Catalogue

Ripmax Handbook (inc. Graupner)

Mantua Catalogue

*New - Boat Modelling Smeed

TOOLS

Multimeter

Helping Hand with Magnifying

Glass

Mini Hammer

Mini Hand Drill 4 1/2" long

Clamp on Mini Vice

Suction Mini Vice

Tube Cutter

Razor Plane

Mains Soldering Iron

V Block & Clamp

Combination Spanner/Allen Key

Screwdriver Set mm

File Set (10)

Junior Hack Saw

Junior Hack Saw Blades

Round Nose Pliers (good quality)

End Snips

Side Cutters

Long Nose Pliers

Vibro Saw

BARCLAYCARD

VISA

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IF IT'S AVAILABLE -
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No. 1 Knife

No. 2 Knife

No. 5 Knife

Knife Chest contains 3 above

No. 1 Assorted Blades

No. 2 Assorted Blades

No. 5 Assorted Blades

1" deep

Coarse 1 1/2" deep

Fine 1 1/2" deep

No. 15 Keyhole and small interior

Gauges for No. 5 Handle

1/2" 2 per pack Chisel

1/2" V Gouge Pack 2

1/2" U Gouge Pack 2

1/2" U Veiner Pack 2

ARTESANIA KITS

Harvey

King of the Mississippi

Eileen R/C

Amsterdam R/C

Galera

Le Hussard

White Boat

Viking Gokstad

Mini-Kit Whale Boat

Long Boat

Life Boat

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Imai Cutty Sark

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1/300

Graupner Fire Patrol

White Star

Kadet

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Florida complete with Jackson out-

board, assembles in an hour with

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For the Junior Sailor - ready-made

Yachts - real sail cloth - very nice

Force 6

Force 2

Force 1

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Garnock Tug

6-volt 4-amp single motor

Electronic Speed Controller

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Speed Controller and Mixer

Kirch Sirius Fishing Boat

WELLCRAFT

Excaltor 40 Hawk, almost

ready to run

6 volt battery to suit

LESRO

Javelin

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Arrow

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Mk 1 Rotating Crane with safety

bolt

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Mk 4 Transformer from reciprocating

motion to rotation

Mk 5 Trench-Excavator machine

Mk 6 Machine to make Raspfiles

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unit

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Hardy

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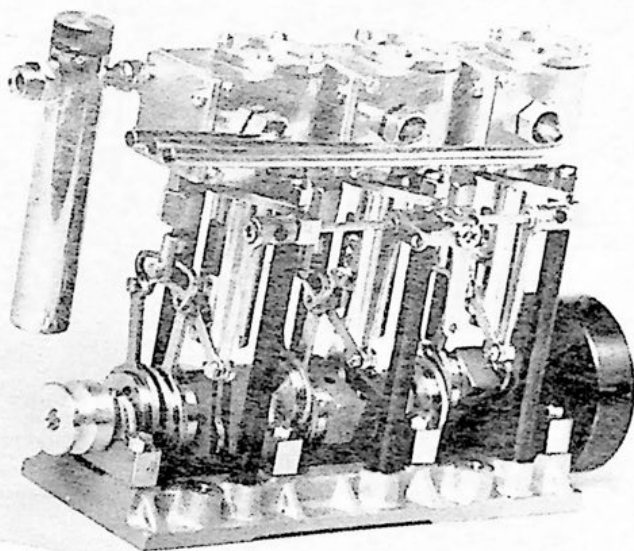
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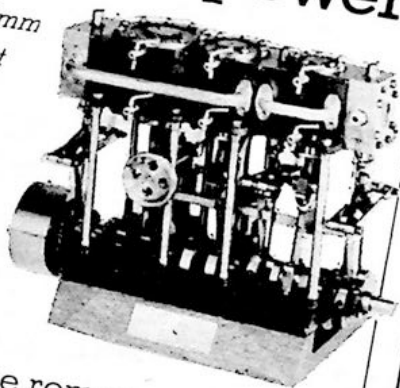
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SUMMER ISSUE ON SALE JUNE 14

CONTENTS

Operation-Z — World War II was the age of Carrier-air warfare but few realise the first carrier-air strike took place a generation earlier in 1918 when Sopwith Camels from HMS Furious took out two airships at their Tondern Air Station in Northern Germany.

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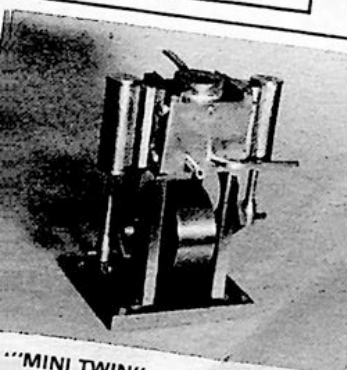


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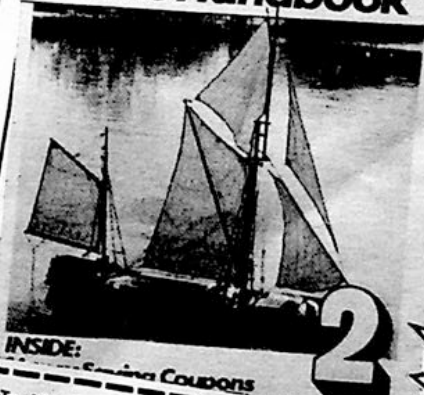
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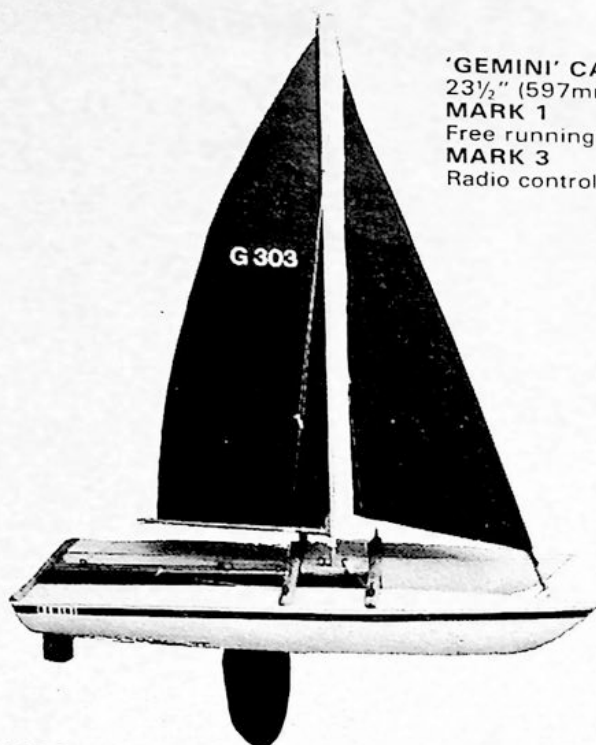
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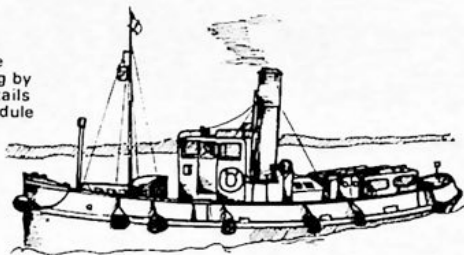
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Burutu, or sister ship Bajima, are modern Nigerian Harbour Tugs, drawn at 1:50 scale, giving a model of overall length 30 1/4 ins. by 7 1/2 ins. beam. The detailed two sheet plan includes full bodylines and suggested drive and radio installation information. Featuring fixed Kort nozzle and rudders on two shafts, the tug is very manoeuvrable. For twin electric drive. Plan MM/1339 Price £3.00 Two-piece ABS moulded hull £9.95 + £2.75 p&p.

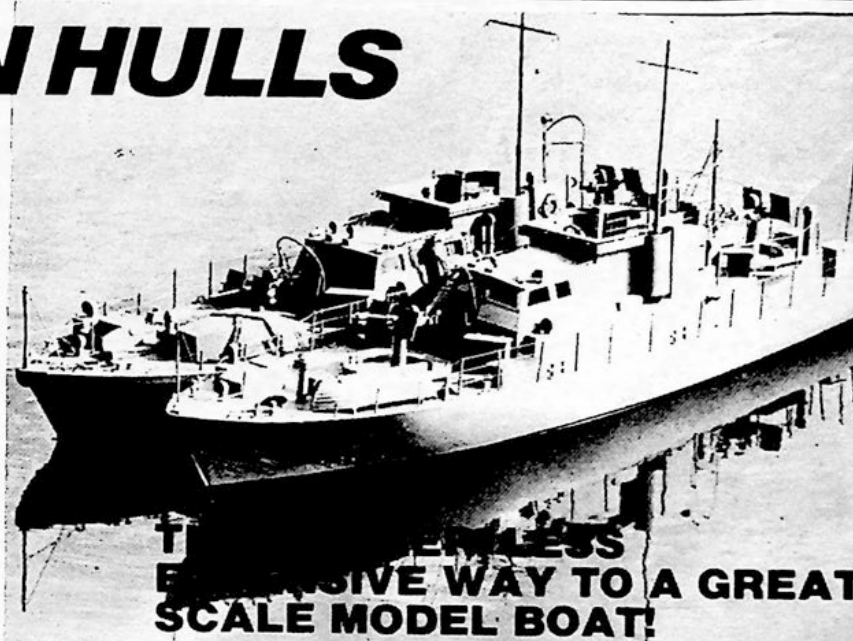
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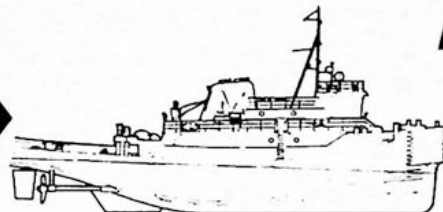
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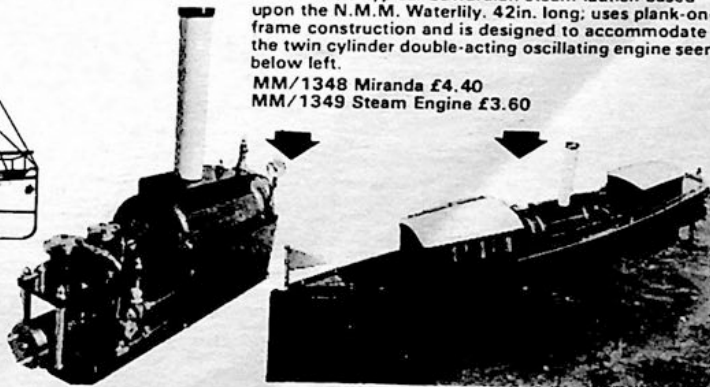
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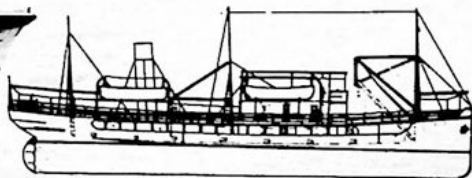
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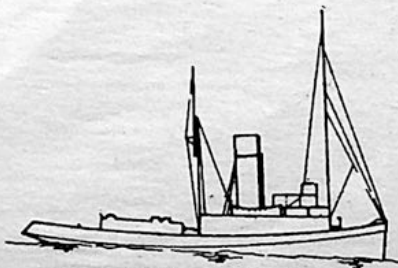
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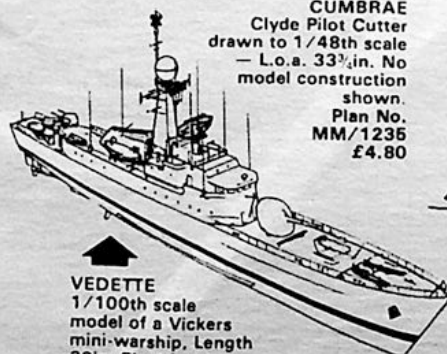


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Points

The latest news and your letters

Club of the Month Exeter and District Model Boat Club

The Exeter & District Model Boat Club was formed in 1980 to cater for aspects of model boating, including scale craft, fast electric craft, yachts, and i.c. models.

Over the years the club has had a steady following with at present around 40 members, many of whom meet every Sunday afternoon at the Exwick Flood Relief Channel (off Station Road, Exwick).

The club runs a series of competitions to cater for as many models as possible. This year they include a scale navigation course, Marblehead yacht racing, R36r yacht racing, fast electric racing, and three i.c. racing events.

Membership at present costs £5.00 for seniors and £2.00 for juniors (16 years and under) and new members are welcome at any time — the only qualification needed being an interest in model boating.

As well as competitions on the home water the club attends many away functions. Recent years these have included Vranth House Hospital, Ugbrooke Park, Buckfastleigh Abbey School, and Tiverton Water Carnival. In addition to the above the club puts on many static displays. A regular feature of this is a display at the Cheltenham & Gloucester Building Society. This takes place each year during the Christmas Holiday.

Throughout the main boating season, which runs from May to October, all members receive a regular copy of the club's newsletter. This contains up to information on all club events as well as competition results, coming events, for sale etc.

If you wish to know about the club or would like to become a member please contact the Secretary, D. Aylott, 85 Station Road, Exeter, EX4 7JP; Tel: Exeter 79680, who will be pleased to tell you about the club.

If you go along to the Exwick Flood Relief Channel any Sunday afternoon you will find a large number of members are present.

Multi-racers will be pleased to note that the Red Baron 250 will be held this year at Basildon MPBC, Northlands Park, Basildon, Essex on 18th August. Pre-entry is required at £2.00 per boat and trophies will be awarded for each heat winner and every finalist plus a prize for the outright winner. Qualifying heats will be run from 10.00a.m. onwards with the usual '250' lap mixed final for the top boats. Send an s.a.e. for entry form to Mick Holliday, 93 New Road, Hadleigh, Essex. SS7 2RG.

Society and Club News

The Wessex Model Boat Club has a new secretary; Neale Hambly, 129 D Symes Road, Hamworthy, Poole, Dorset.

There is a date change for those intending to compete at the Basildon Model Power Boat Club's October Deep Vee Offshore and Cruiser Boats regatta. The corrected date is now 13th October. All correspondence should be sent to P. Darch, 29 High Road, Vange, Basildon, Essex SS16 4LY; telephone 0268 558562.

Bill Thomas, 575 Owners Club Secretary has advised that the 575 Nationals for 1985 will be held on 21st July at the usual venue, Stanford Hall, near Lutterworth, near Rugby. Pre-entry is required, before 9.00p.m. on 19th July to Elaine Middleton, 5 Brinsmead, Knighton, Leicester. LE2 3WD.

South Wales Model Spectacular

The Ogwr Borough Council, Leisure Services Department, in conjunction with local modelling and craft organisations is, on Saturday and Sunday, 21st and 22nd September, presenting the largest model and craft show in Wales.

The event — The South Wales Model Spectacular — to be held at the Bridgend Recreation Centre follows closely the very successful pattern of previous model shows held at the old Sophia Gardens Pavilion, Cardiff and at the same venue at Bridgend with a blend of model railways; working boats, cars and aircraft; plastic and military modelling; model engineering and various crafts.

Indoors, in the main recreation building, the displays will cover approximately 18,000sq. ft. of

modelling and craft activities whilst the extensive adjacent outdoor area provides the location for radio controlled aircraft, boats and cars in use in their own elements. Commentary outdoors will be by the irrepressible Dave Bishop of D.B. Sound.

Trade stands will be in attendance with the usual bar and refreshment facilities. Times of opening will be 10.00a.m. to 8.00p.m. on the Saturday and 10.00a.m. to 6.00p.m. on the Sunday. The charges for admission will be £1.50 adults and £1.00 children, senior citizens and registered unemployed.

Enquiries regarding the event may be made to Leisure Services Dept., Ogwr Borough Council, Bridgend. Telephone 0656-62141 Extension 3603.

Printout

Submarines of World War Two



There are two new books from Arms and Armour Press (2-6 Hampstead High Street, London NW3 1QQ), which will appeal to readers of *Model Boats*, especially if their interests lie in the 20th century.

The first of these is *Submarines of World War Two* by Erminio Bagnasco, which sells for £19.95. If you think that this sounds a lot of money let me assure you that it's worth every penny. Between two splendid covers, which portray the loneliness of U-boat patrol in winter, you will find described with text, drawings and photographs details of all submarines that served with the combatant powers of World War Two. There are over 500 photographs and line drawings.

The line drawings are not to a common scale which at least ensures that all drawings are of a reasonable size on the page, whatever the size of the prototype. After an introduction which traces the evolution of the submarine from its origins, the book takes each country alphabetically and describes its submarines in depth. An absolute must for those interested in

Conway's *All The World's Fighting Ships 1906-1921* is published by Conway Maritime Press Ltd. and retails at £35. We have covered the earlier volumes in this series in previous issues of *Model Boats* and once again have no hesitation in recommending the completed work which covers the period 1906 to 1921. The completed series now provides a unique reference work covering the whole history of iron and steel warships from the first ironclad to the present day. One cannot describe in a few words the enormity and impressive nature of this series. The format is on as large a scale as the subject and extensive use is made of half tone and line illustrations, with the great majority being at 1:1250 scale.

This volume lists all significant warships built, or projected, between the revolutionary *Dreadnought* to the Washington Naval Treaty; essentially the heyday of the battleship, but with the aircraft carrier and submarine making their debut. As collectors of the previous volumes will know, the work is organised by country, ship type and class, with a design history and career summary, plus extensive tabular data for each. Their are background articles covering important political and

undersea warfare.

The second book is *Aircraft of the U.S. Navy*. This will set you back £35. This, the 13th edition, 'moderns' as its scope development of the modern fleet and its current expansion programme. It is expected this fighting arm will number more than 700 vessels by the end of the current decade. Profusely illustrated with top quality photographs, this book is very good value, notwithstanding its price, for those whose interests lie in this period and sphere.

G. Dix

CONWAY'S ALL THE WORLD'S FIGHTING SHIPS 1906-1921



by 10in., large photographs, price £10.95.

Testb

Looking for some types for your next if your scale happens

Model Boats

August 1985

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technical developments,
concluding with a complete
statement of fleet strength in
1906.

An illustrated catalogue giving
details of the series and other
titles is available from Conway
Maritime Press Ltd., 24 Bride
Lane, Fleet Street, London EC4Y
8DR.

THE DESTROYER ESCORT ENGLAND

Al Ross



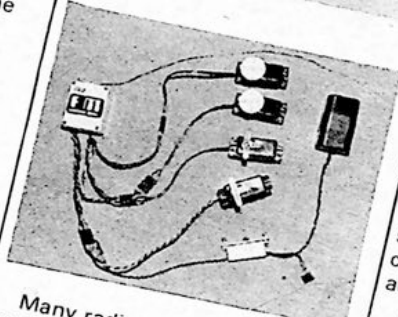
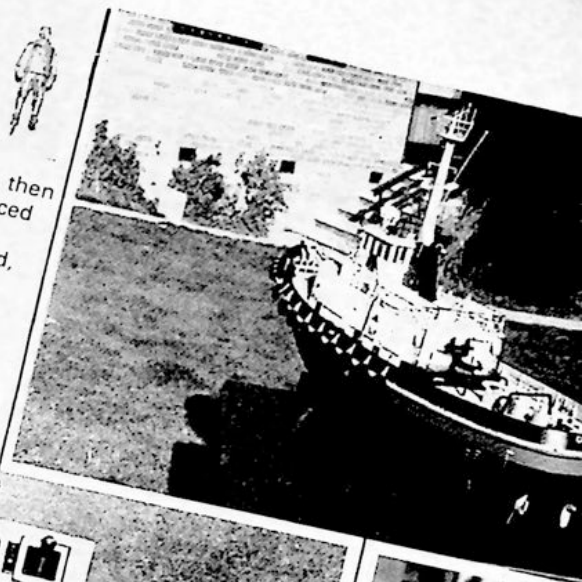
Also from Conway Maritime
Press Ltd. is another fine work in
the *Anatomy of the Ship* series,
The Destroyer Escort England by
Al Ross. *USS England* won a
unique place in naval history by
sinking six Japanese submarines
inside a period of two weeks
during May 1944. However, the
ship also belonged to one of the
largest classes of major warship
ever built — over 500 saw
service in both the United States
Navy and the Royal Navy (as the
blend-lease 'Captains' Class).

As per previous works in this
series, the book features a full
description of the design,
the weapons and a career
emphasising close-up and on-
board photographs; colour guide
200 perspective and three-
view drawings, with in-depth
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around 1:76 (4mm = 1 foot), then
take a look at a series produced
by Roger Saunders and
Associates, 209 Queens Road,
London SE14 5JN. The five
figures reproduced here are
cleanly cast, require painting,
and retail for £1.35 plus 30p
postage.



Many radio control modellers
may not be aware of the wide
range of radio systems available
from **World Electronics** under
the *Talisman* logo. They are all
on 27MHz in both AM and FM,
two to seven channels. There is a
wide choice of case layouts and
custom-made cases are no
problem. Our photograph shows
a standard two or four function
outfit, a four function (twin stick
at right and two lever functions
at left) and a five function unit
with steering and two other
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on the left. Factory-made at
Watford, all knobs, levers,
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Most transmitters are 12-volt
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standard or sub-miniature sizes.
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Available for over ten years,
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supplied and backed up if
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A typical price for a 4-channel
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More details from **World
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Watford, Herts. WD2 4NV,
telephone Watford 42859.

Mailboat
March Cover Correction
Dear Sir,
The March 1985 issue of

Trevor Knight's tug Campbell Cove
which was incorrectly captioned
when it appeared as our cover model
in March issue.

Model Boats carried a picture on
the front cover of my model of
the tug Campbell Cove.
Unfortunately the caption was
mostly incorrect. Shaughn
Lowery photographed several
models at that regatta and
obviously some of the details
became mixed up somewhere on
route. I would like to take the
opportunity of correcting the
information.

I built and own the model. The
prototype is owned by J. Fenwick
and Co. and was designed by
Barnes and Fleck of Newcastle,
NSW and built by Carrington
Slipways, Tomago NSW. (Very
similar in power and design to
the tug Yarra featured in *Model
Boats Radio Control Special* a
couple of years ago).

The model was constructed
from builder's plans at a scale of
1:33.3. This gave a reasonable
size model at 35in. long with a
displacement of 23lb. Hull
construction is ten 4mm ply
frames covered by 1mm thick ply
and one layer of light glass
reinforced plastic. The
superstructure is light timber
clad in 0.5 and 1.0mm ply.
Fittings are timber, brass, plastic,
etc.

Propulsion is from two
Decaperm Pile motors geared at
6:1 driving four-bladed
propellers. The motors are
individually controlled.

electronic speed controllers and powered individually by 6-volt, 10a/hr gel-cell batteries. The twin Kort nozzles are steered separately as on the prototype and, yes, she will go sideways.

The fire monitor is operational, traversing horizontally and raising and lowering vertically. The model took about twelve months of intensive effort to complete. I have enclosed some more photographs of her which I hope can be published.

Trevor Knights
Macgregor, Australia.

* * *

Steam Safety at Sheffield

Dear Sir,

I would like to thank Mr. R. Wines of Western Australia for the photograph (May 1985 *Model Boats*) of his steam powered trawler which exploded. It takes a brave man to admit his mistakes! Let all steam enthusiasts learn a lesson.

I gave a talk recently to my Sheffield club on the subject of steam, and warned about the dangers of making boilers of brass. The reply was: "Well Mamod do!" I hope Mamod and Wileco have stringent materials control which amateurs cannot match, but as a repairer of brass musical instruments I know what unreliable behaviour brass can have, especially when hot or old. Brass ages and corrodes, losing its structure in time, so I find it not surprising that Mr. Wines' boiler burst "after twenty years faithful service." We can assume Mamod's guarantee had expired!

A silver soldered copper boiler is not difficult to make — a pot one anyway. D. G. Gordon's recent articles (February and June 1984 *Model Boats*) gave excellent advice on the subject. A copper boiler can be made of fairly thin material and it is then easy to silver solder using ordinary butane blowlamps. Although silver solder is expensive, do be generous in filling the joints and be careful to avoid any soft solder getting into molten silver solder as it will weaken it seriously.

The boiler on my *Streamlinia* (photos August and December '84 *Model Boats*) was tested hydraulically to 200 psi using an ordinary grease gun filled with water, with a good 300 psi pressure gauge from British Steam Specialists Ltd. This not only ensures that a boiler is structurally sound, but also reveals any leakage. Use a reliable brand of safety valve if you are not confident about making your own, but even a malfunctioning safety valve should not cause immediate danger. *Streamlinia's* boiler has a normal working pressure of 35-40 psi with the safety valve set

to 50 psi. Cold water hydraulic test went up to 200 psi, but the copper thickness is designed for exploding at over 500 psi. Applying Murphy's Law for steamers, that if a number of things can go wrong they will all go wrong together, should not cause suspected I.R.A. activity!

With the increasing popularity of steam power, it is important that we avoid accidents to ourselves or to onlookers. A steam boiler is a potential bomb, but properly designed and tested it is perfectly safe. I wish Mamod and Wileco would change to using copper for boilers, but until they do, I suggest you throw away any brass boiler after no more than 10 years use and make yourself a copper one. Better still, make your own in the first place, save yourself money and thereby put pressure on these firms to make a safer product more suitable for models intended to last longer than kiddies' toys.

Keith Burdett,
Sheffield.

* * *

R/C Yacht Racing

Dear Sir,

It has been said that radio control is only another stage in the continuing development of yacht steering systems, but with sail control it is rather more than that. Reflecting on the steering aspect and the simplicity of the form of racing to which Braine and vane gear applied, it occurred to me that no-one seems to have suggested vane-type racing (i.e. beat and run) but using radio to steer and tack. Racing in pairs, out and back, with spinnakers used on the run, could be extremely close if a radio rudder could do the tacking and steer out of trouble, flat patches, etc. It could be done with rudder only, making it cheap and putting a premium on good sail trim, and most situations would be covered by normal vane racing rules. It could also be done on any water where the skippers could get from one end to the other, even if one bank was inaccessible.

Race organisers could probably arrange a few spare crystals, but with only two boats at a time there should be no difficulty and if a second pair had the same frequencies they could be held back until the first pair had finished. Some simple signalling system could be used to indicate when the first pair had switched off.

Such racing would have all the simplicity and advantages of vane racing, but with no poling off, no violent exercise to get round to catch your boat and none of that bellowing which seems part of existing radio racing. It could be an ideal half-way stage and of

interest to new recruits. It might even bring the 10 Rater back!

M. Crumble
Charleywood

Fuel Additives and Safety — 1

Dear Sir,

An article/letter published in your March 1985 issue of *Model Boats* has recently been brought to our attention; this was from Frank Bradbury, President of the MPBA and mentioned amongst other things the safety aspect of 'nitro' and possibly other fuel additives.

From our long experience in this field we find that there are a considerable number of misconceptions about fuels and fuel additives and we would like to take the opportunity to correct a few of these here. Apart from the effects of increased power arising from the use of less normal fuels/additives, increased hazards over those found in 'normal' fuels such as Methanol or Petrol only arise with three of these that are, have been or could be used to any useful effect based on current knowledge, these are: (see table):

Name	Use	Problem	Status
Iso-Propyl Nitrate	Diesel fuel	Heart stimulant (1)	In use
Propylene Oxide	Ignition point advance (2)	Very inflammable (3)	Rare use
Benzene	Octane boost & Time per tank (4)	Carcinogen	Not now used

For comparison here are the hazard levels for the 'Normal' fuels.

Methyl Alcohol (Methanol)	Damage to vision & Mental faculties (a)
Petrol (Pump)	Very inflammable (2); Carcinogen (b); Lead poisoning (c)
Nitromethane	None (d).
(1) By inhalation.	
(2) In methanol/Nitromethane fuels.	
(3) Flash point -40°C, same as Diethyl-Ether used in Diesel fuels.	
(4) In Petrol based fuels.	
(a) Long-term skin absorption and or vapour inhalation.	
(b) Long-term skin absorption.	
(c) Ingestion.	
(d) Very low flammability. Flash Point 94°F. Very low toxicity. Fairly sensitive to shock in the liquid phase above 800 psi and 300° Celsius, not at all sensitive at normal temperatures and pressures. Mixing with the other fuels and normally available additives does not increase the hazard. Additives such as Hydrazine which is not normally soluble in Nitromethane can cause a small increase in shock sensitivity which is only evident inside i.e. engines when used in concentrations above 80%.	

The cost of higher performance fuels was also mentioned. With a product like Nitromethane we of course agree that it is expensive but used in moderation it can markedly improve the flexibility and starting characteristics of an engine. This can add to the enjoyment of the sport without being a financial burden compared to some of the expenses in these hobbies, and certainly without reducing the life of an engine.

In the case of serious competition, performance increase has always cost more but from our observations fuel cost is not usually the predominate one, when paying a lot more for equipment than your rivals (if you can afford that!) has a great deal of effect on the results.

Finally on the subject of engine life, the 'known fact' of shorter

life referred to by Mr. Bradbury is probably learnt from the upper performance end of a number of sports that use Nitromethane and indeed has some truth, but what is often not realised is that striving for high performance in any engine reduces the life regardless of the fuels used and often more so in engines mechanically tuned to produce high outputs, just look at Formula-One motor racing using petrol. Yet where Nitromethane is used in a fuel and engine damage occurs it appears to be automatic to blame the fuel.

Over many years connected with the use and testing of both full-size and model-size engines of all types we have observed that there is an increase in the catastrophic failure rate of high performance engines when using high proportions of Nitromethane in the fuel compared to more conventional fuel, but this occurs mostly because of the ease with which it can be added to fuel, but without the knowledge that would for example be normally applied when making serious mechanical modifications to an engine for a performance increase. In general terms the

life of an engine in the wear sense is not sensitive to the type of fuel.

P. Billinton,
G-Max Research Co. Ltd.,
Sutton, Surrey.

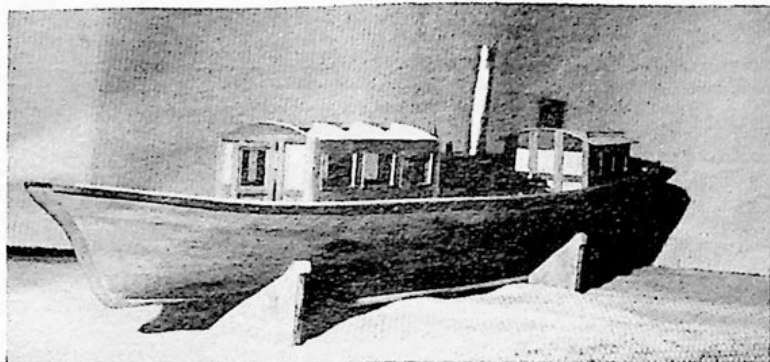
* * *

Fuel Additives and Safety — 2

Dear Sir,

Particularly I would like to address this letter to Mark Keller BSc, the writer of letter headed Nitro (oxidant additives) and then to others who may have misunderstood my previous correspondence on the subject. I can never understand why writers of replies will not name the original writer — to put this right — it was (name at end).

My original writings only mentioned two of three reasons I have noted against Nitro and did



The MAP plan Miranda, complete with twin oscillator seen at the Docklands and East London Model Engineering Society Exhibition in March 1985. Photo: Ted Jolliffe.

not elaborate on them, only on the question of safety. I also made it quite clear that the subject was not nitro but oxidant additives.

I wholly agree with most of your propoundings on the use of nitro, sometimes referred to by their fuel names as nitro-methane and nitro-propane. My reasons against the use of oxidant additives have been expressed at the multi-conference for the last 15 years except for the 1984 one. At this last conference I decided as there was such a lot of murmurings from the few advocates of the free fuel idea, that I would keep quiet until the national voting made the decision. This they did and to substantiate my faith in the democratic, many voted by a reasonable majority against. My attendance at multi-conferences are as an ordinary individual multi-racer and not as President. If you had been to any of these conferences Mark, you would have heard my reasons expressed there.

Your very good reasons for are based on use by reasonable people of nitro, and in reasonable percentages. The foolish, which these rules are there to protect, are not mentioned.

In 1969 at the Bulgarian venue of the European championships, one competitor of Russian origin, came very close to serious injury by using a fuel containing some exotic oxidant additive. The mixture spontaneously exploded at the pond side. It was so violent that he didn't feel he could compete, also his boat was completely useless. A year or two later a member of the MPBA inadvertently had some of his special fuel splashed into his face and eyes, his eyesight was effected for months afterwards and he couldn't compete for quite a while.

A brief history of the nitro ban was that at first the pondside tests were crude, and it was then established that these tests were inconclusive in numerous cases. The present day tests are carried out using the full resources of the chemistry department of Manchester university. They can

identify all known oxidant additives.

I do realise that while a few would benefit and that in the name of Great Britain our teams would bring back more medals. This I would be very proud of. In recent times we have done very well against the experienced nitro users. Nevertheless my concern is for the safety of the many in the MPBA: believe me I have no axe to grind other than safety.

Frank Bradbury,
Manchester 22.

* * *

Tethered Hydroplanes

Dear Sir,

As a reader of *Model Maker* and *Model Boats* for over thirty years, and also a past competitor in tethered hydros, I must comment on the letter from R. T. Pole in the May issue.

The tethered hydro enthusiasts are a small group working extremely hard at keeping their hobby going. There are very few lakes available now for hydro running and for many, a round trip of over 200 miles is needed for either test runs or meeting with the nearest fellow enthusiasts. Larger sections of the MPBA are expressing concern over the loss of members and reduced regatta attendances, but the hydro fraternity have existed many years with few members, few lakes, no magazine coverage, rare local club support and no trade or model shop interest.

Most newcomers have never seen or heard of a tethered hydro and wish to make the type of model seen on their local pond or offered them in the model shop. What reaction would a novice receive if he went to his local club or model shop and asked for advice to make and run a tethered hydro?

For many reasons the hydro lads seem to have concluded that it is better to maintain a low profile, operating alone on their own lake with little publicity. However they are a dedicated bunch and despite their problems, are still building fine

boats and engines, breaking records and giving a good account of themselves in Europe, and they do deserve a little recognition.

I don't believe they have a reporter or photographer in their ranks and most are too modest to send details of their own work and achievements to a magazine especially when they feel readers are not interested anyway.

I attended the St. Albans International hydro meeting as a spectator and agree that it deserved a report and pictures in *Model Boats*. The lake at St. Albans is only available for hydros on two days each year.

A Cotswold club member broke the 30cc record at 92mph and Mr. Rose broke the 15cc record at near 100mph. Both these gentlemen designed and built their own Schnuerle ported racing engines as good or better than the best from Italy or Japan. Both engines should definitely have appeared on the front pages of *Model Boats* and *Model Engineer*. Why we don't show off British achievements in engineering, I will never know. Also at St. Albans, Terry Everitt won the 10cc event at 116mph using a British Fisher Redshift RE commercial engine, set up and equipped with his own Zimmerman induction system. I cannot recall this event ever going to a British commercial engine in the last 35 years, so this too should have made front page news. Hope this letter will help put the record straight.

Perhaps the gentlemen could be persuaded to furnish photographs of their work for publication.

Surely the magazines have a roving reporter/photographer who could attend at least one hydro meeting such as the St. Albans International?

A good indication of the state of the art could always be obtained from the results of the NAVIGA World Championships, but *Model Boats* failed to publish those for 1983. I wrote twice asking for these results to be published but nothing yet. A round up of each season's top speeds for each class with a few pictures of boats and engines would be welcome, also some articles on i.c. engine construction.

Many newcomers would find the history of model boating of interest, but it should be secondary to, and not a substitute for current events. A month by month reprint of the Percival Marshall book 'The History of Model Power Boats' by Edgar Westbury would cover the period up to the 1940s. The 1950s and 60s hydro scenes could be covered with pictures of the top enthusiasts and their boats. Names such as George Lines, Dick Phillips, Basil Miles,

E. Clark, R. Mitchell, G. Stone, W. Everitt, B. Pilliner, J. Benson, Arthur Cockman, F. Jutton, J. Bamford, Ken Hyder and more come to mind. Also our friends Paul Mercier, M. Menant, R. Grenier, Malfatti and the Chevrot brothers from the continent, and Max Birdman, Charles Watkins, Ed Kalfus and others in the USA.

R. T. Pole is correct in stating that tethered boats are cheaper to build than R/C boats, but newcomers must be careful in selecting the correct engine. Model shops lack knowledge of hydros and purchasing the wrong engine can waste money. Marine racing engines have the correct induction system and port timing, but will need the head or crankcase changed to air cooling and the R/C carburettor changed for a standard venturi. Aircraft engines however usually have the wrong port timing and induction system and insufficient power for a hydro.

It would be interesting to hear the views of others on these subjects and to know if any active hydro people still read *Model Boats*. The only items of interest to me recently are Mike Billinton's engine tests. I wish however that more racing engines were tested on tuned pipe and straight fuel, as required for MPBA and NAVIGA events.

Jim Hampton,
Hampshire and South Coast
Model Hydro Club

A number of points are raised by Jim Hampton's interesting letter. First of all, if hydro enthusiasts keep to themselves and shun publicity, there is going to be little encouragement for others to take an interest. There has been space available in this magazine for hydro material ever since I took the editorial chair, and not just in Propwash. All sections have an equal right to take up their space in Propwash - note the scale and more importantly as far as the minority interests are concerned the straight running fraternity's use of the column.

Unfortunately the magazine is not capable of supporting roving reporters/photographers - only an Editor and a shared secretary, so despite the efforts of yours truly to cover all events on an equal footing, by necessity the majority of event reporting must come from outside contributors and interested third parties. The St. Albans meeting clashed with a prior personal commitment and no report was received for publication. Similarly, the results from 1983 NAVIGA arrived on my desk, after much chasing, six months after the event together with photo coverage mainly of people receiving medals rather

than details of models.

Perhaps other readers would care to voice their opinions about a 'nostalgia' slot.

Finally, how about a tethered hydro design to encourage newcomers from one of the dedicated hydro enthusiasts. It is many years since we last published a plan for such a model. A detailed how-to-build article with step-by-step construction photos might well enthrall some new blood into the hydro scene. We also pay for material published! Editor.

* * *

True to Scale Models

Dear Sir,

I could not but agree more with D. G. Gordon's sentiments as expressed in his letter in *Model Boats* of May 1985. My scale ship-making started with a 40in. long x 10in. beam model of a 40-foot Inspection launch for a Flood Relief Scheme in Iraq (circa 1947) and although twin screw, the nearest I could then get to twin diesels was a large clockwork gramophone motor with suitable split gearing!

My second venture onto the local lake was a steam scale model of a river Doctor's Tender (one size down from the immediate post-war Mersey tugs) which had a truly memorable and spectacular maiden, and only, voyage — culminating in a fantastic burst of speed with flames licking through the upperworks prior to her settling, waterlogged and sizzling, due to an engine-room fire!

I am now starting on a Mersey Ferry Project in 1/32nd scale at approximately 59in. long x 17in. beam and a draught of some 4in. Will Mr. Gordon allow me to use two 'twin' engines in lieu of the correct Triple Expansion? Also should I go to the trouble of building two Scotch boilers 4in. dia. x 6in. long drums or may I use a 6in. diameter drum unit which would 'intrude' some six scale feet into the enclosed passenger cabin?

The final point, and this is perhaps the scale problem, is it a feasible proposition to use a metal (brass and tin-plate) frame with scale size plates soldered on?

Rivets would be correct but 'n' thousand at 1/32in. diameter at a pitch of 3/32in. seems to me to be a bit of a tall order. Seriously though, is a soldered metal hull of this size and a displacement of some 68lbs. a viable proposition? Has anyone else ever tried it and are there any helpful tips or comments forthcoming from your readership?

Tony Noonan,
Wallasey, Merseyside.

* * *

True to Scale Again

Dear Sir,

Re Don Gordon's letter, some time ago I worked long and hard and made a model of *HM Submarine Resolution*; the hull in high tensile steel was a problem so was the quarter-scale reactor (nuclear) but I tried. Unfortunately by the time the lead shield was placed it was too heavy and sank on trials.

Seriously some of his statements are laughable and some of his competition rules are ludicrous. If he wants prototype building then no more Mamods or ST singles in tugs, etc.; miniature triple expansion engines please; and similarly model Doxfords and Sulzers in motor ships.

All scale modelling is a compromise and things are not always what they appear to be. The mate of *Tacoma City* makes the same error in his comments about ropes. Has he tried to simulate model rust? No doubt he is familiar with the real object. If your correspondents wish to go to these great lengths, OK, but I prefer to build more than one ship per lifetime.

Finally, did he ever see a GWR driver sat on a bogie behind the tender driving and firing the loco. Remember these days some females don't even look like women! (And the men! Ed.).
(With tongue in cheek) Dick Ashman
Ashford, Kent.

* * *

More on Sheet Metal Construction Required

Dear Sir,

As a constant reader of *Model Boats* I have yet to read an article regarding the construction of sheet metal boats.

No information is available from the local library, however somewhere, there must be modellers who have tried this method of construction.

Enclosed is a photograph of a Salvage Tug *The Daisy Mae* (real name) which I constructed. For such a model my memory had to go back 40 years. The original was a salvage tug which plied the hot spots of the Pacific during WWII. The colour scheme is as was, but those days more rust prevailed than paint. In the recess at the rear of the superstructure a landing barge was carried for close inshore salvage. The monitor was demountable and replaced with a .5 Browning machine-gun when required.

My first acquaintance with *Daisy Mae* was just after she had been fitted with a new underwater bow section. While taking avoiding action during an

air-raid she crunched onto a coral reef. The whole section was cut away and two flat 1/2in. triangular steel plates were welded in position. Hence my model shows these plates.

The model's hull is of 24 gauge galvanised iron 49in. long with a beam of 12in. The superstructure is of 26 gauge galvanised iron. The bottom section is rounded from stem to stern with a skeg fitted for the fixing of propeller tube and prop. The hull joints are lapped, spot welded and soft soldered for strength and water tightness. In the construction of the hull no form work or building board was used and internally there are no bulkheads, cross members or bracing to clutter up the inside. A flat galvanised iron bracket is fixed to the hull to mount the motor. At the rear of the skeg a 1/4in. brass screw was fitted so that any water which should enter the hull could be easily removed.

For rust-proofing half a pint of silver bituminous paint was poured into the hull and allowed to penetrate all joints and crevices, then allowed to drain from the drain hole.

The propulsion unit is a 12-volt windscreen wiper motor powered by a lead acid automobile battery. The monitor is connected to a windscreen wiper pump and a motor cycle horn is fixed below deck and adjusted to a realistic pitch.

The railings and ladders are of bronze welding rod silver

soldered and soft soldered in position.

A 3-channel radio unit is used to operate the rudder, forward and reverse, monitor and horn. The radio equipment is all fixed into a sheet metal tray which clips into the deck opening of the hull before the superstructure is positioned.

My model would not win a scale or stand-off scale competition, but the very sturdy construction has enabled it to plow through a 2ft. high wave from a passing speed boat without a drop of water penetrating inside the hull.

My fleet consists of *Daisy Mae*, *Queen Mary* and the *Hunter*, a Stuart Turner V10 steam powered cargo and passenger liner which travelled the New South Wales coast during the 1920s and 30s. A luxury cruiser of Hong Kong design completes the list except for other sundry vintage boats.

Incidentally my method of cleaning ship is simply to wash down with a garden hose!

In conclusion, although I have not described in detail the planning and construction of *Daisy Mae* I would be only too happy to exchange ideas with other modellers of like interests.

Please convey to Mr. Basil Harley my congratulations for his many articles on steam nostalgia.

Jerry Wile,
44 Cabramatta Road,
Cabramatta, NSW, Australia.

* * *

Broads' Cruisers

Dear Sir,

A year ago thumbing through a Broad's Hire firm's catalogue, I was struck with the idea that a typical Broads' cruiser would be a fairly easy and quick to make model owing to the absence of excessive detail, e.g. no stanchions, masts, spars, etc.

This particularly appealed to me as owing to neck problems I can only spend about half an hour a day bending over a bench.

The model as per photo, was built to 1in. to 1ft. scale, 38in. o.a. and represents the *Constellation* and *Caraelle* classes which can be hired from Horning. The only reference for details was from the catalogue.

The model is fitted with a 12-volt fan blower motor (ex car or aircraft), and has two-channel radio. The hull is of glass fibre and the cabin sides etc., made with veneer off-cuts of real teak obtained as scrap from a joinery company, the whole offset with mahogany strip.

To other readers who may be attracted by very simple boat types, I can recommend a look through a hire firm's catalogue. Broads' cruisers come in all sizes, some are quite handsome, others the reverse, but all appear to be of interest and uncluttered with detail.

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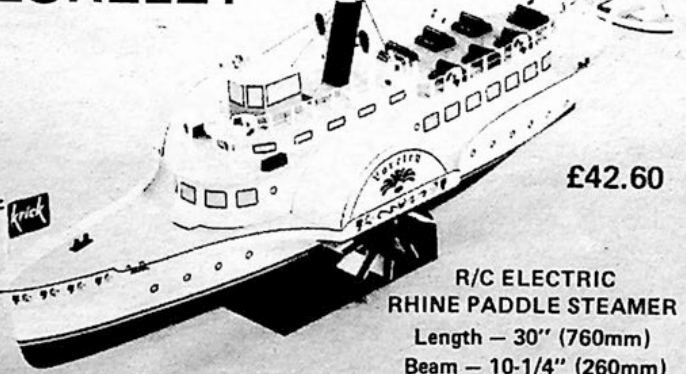
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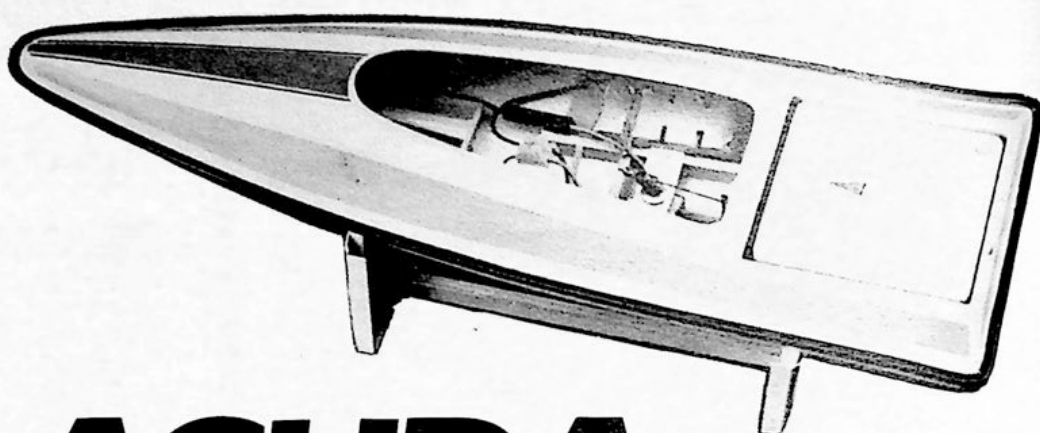
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Fast electric models are popular in West Germany and the chance to review a typical kit, if a little unexpected, was eagerly taken. The *Barracuda* kit, manufactured by Krick, distributed by Micro Mold, follows the modern idiom by employing numerous vacuum-formed ABS plastic parts. Ply and hardwood strip are supplied for internal structures and a comprehensive hardware package is included. The items required to complete the model are motor (540 or 550 types), Ni-Cad cells (8-10 x 1.2 Ah), motor switch, two function radio and some glue.

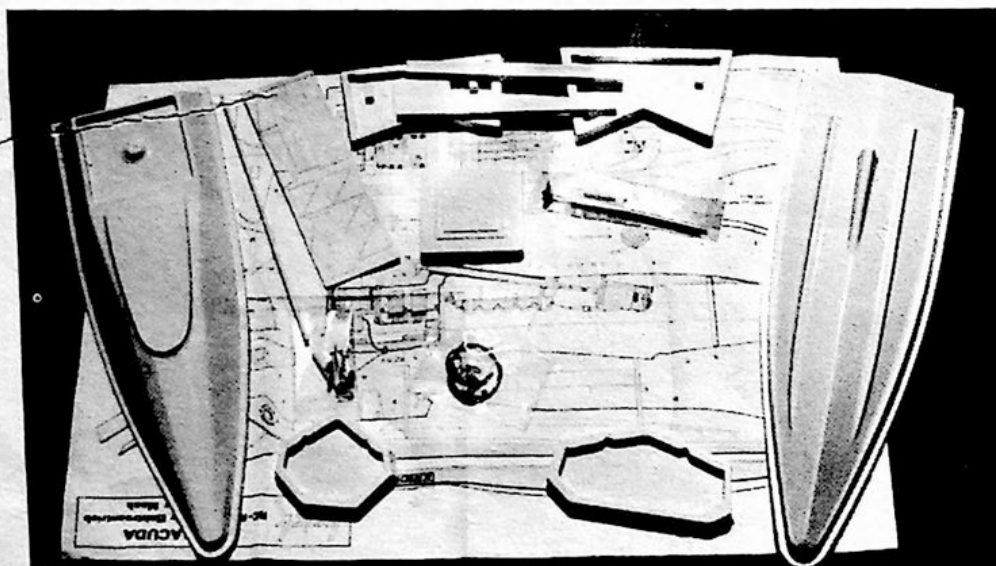
At first sight, the hull appears to be quite large for an electric boat (26 3/4 in. or 680mm in length). It follows typical powerboat form with open access for the motor and

Barracuda ready for the off - no starting cord required.



BARRACUDA

Glynn Guest reviews Krick's Fast Electric sports, fun and competition boat, distributed by Micro Mold



Above: what you get for your money. Right: underside with rudder and propeller shaft fitted.

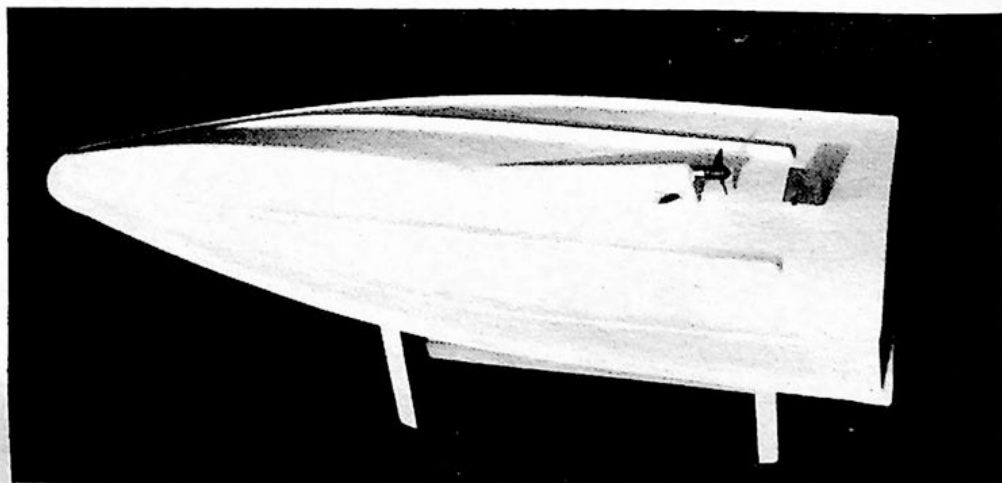
cells, and a watertight radio compartment at the stern. The underside of the hull displays two moulded-in strakes, presumably to increase lift, and a substantial skeg which encloses all but the end of the propeller tube. This latter feature caused my eyebrows to elevate somewhat since it is of considerable cross-sectional area. As such, it masks part of the propeller disc and must create quite a bit of turbulence when sailing. My first thoughts were to cut out the skeg and cover the hole with scrap ABS sheet, then fill and sand smooth. However, a kit review is a kit review and there must be limits to the liberties you can take with the designers' pride and joy.

Whilst the kit was straightforward to build, it was a little disturbing to find the written instructions were in German. Fortunately a crash course in this language was not needed since a highly detailed full-size plan was also included.

welds and very difficult to break. ABS is not affected by many common solvents and the best cements to use can be borrowed from the plumbing trade where plastic waterpipes have to be joined. Suitable cements can be obtained from hardware stores under the names of Osma and Bartol.

Another good cement, although somewhat faster drying, is Uhu Hart (blue tube). This cement is also good for ABS/wood and wood/wood joints, provided you pre-cement the wood. (Apply a thin coat of cement to fill the grain and allow to dry before applying the proper joining coat of cement). I shudder when I hear of people using epoxy adhesives on plastic parts.

A mechanical joint can be made by roughening the surfaces before applying the epoxy, but no welding takes place, and should you sail your model at full speed into



Adhesives

Before commenting upon the constructional aspects of this model, a word about adhesives is called for. By far the best way to stick plastics together is to use a solvent type of cement, i.e., the surface layers are melted before the cement dries. Properly carried out, such joints are true

the bank you can end up with the model turning into a kit of parts again!

Gaps can be filled with polystyrene fillers. Humbrol market this product in convenient tubes. A final point is that we only want to dissolve the surface layers, and it is possible to soften and distort the plastic with too liberal an application of cement and filler.

Construction

Back to the model, and after figuring out how to build it I was surprised to find that all the ABS mouldings required substantial trimming, not in itself a difficult task — 30 minutes of firm but careful cutting with a Stanley knife was all that was needed — but I cannot help thinking that a little more thought and this work could have been avoided. A tip here is to start with the model stand mouldings and gain some practice before cutting the important bits. Incidentally, the inclusion of a stand was a

middle of which the rudder tube was firmly stuck.

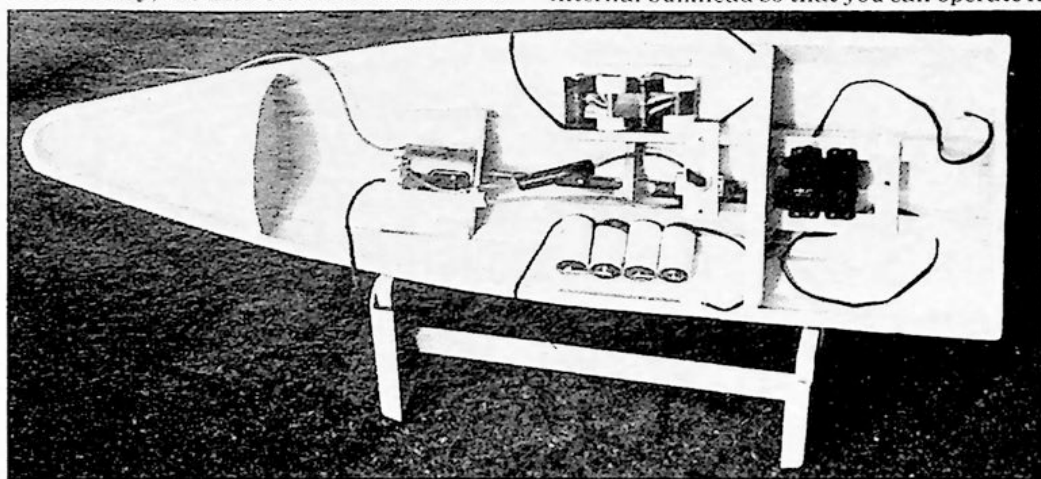
According to the plans the receiver is fixed with servo tape to the servo rails and the battery pack wedged underneath, a neat installation provided you don't want to change your batteries in a hurry, or move the gear from one model to another. Since I have more models than radios I used two blocks of foam plastic, with suitable recesses cut into them to hold the receiver and battery pack either side of the servos. The radio switch is shown mounted on the internal bulkhead so that you can operate it

from the motor/battery compartment. This is a convenient but hardly waterproof method, and either a thin rubber membrane between switch and bulkhead or the time-honoured wire through tube method of switching is recommended.

The propshaft, tube and motor should be fitted together using the aligning tube provided in the kit. The instructions appeared to show the propeller tube firmly encased in a glue-filled skeg. I still had the idea that the skeg would be coming off sooner or later, so a less permanent method of securing the tube was employed. An adequate but not over-generous coat of cement on the inside of the skeg fixed the lower end, whilst the top was held with a wad of plastic filler and a coat of cement to bond it into the hull.

At this point it dawned on me that the radio compartment could hardly be classed as waterproof, as the internal bulkhead sits over the skeg recess. The plans show a piece of ABS sheet filling the gap below the bulkhead but an easier way is to use a square piece of scrap ABS sheet over the hole in the radio compartment.

After fitting the forward bulkhead, all the joints were checked, and any gaps sealed with plastic filler and a coat of cement. The

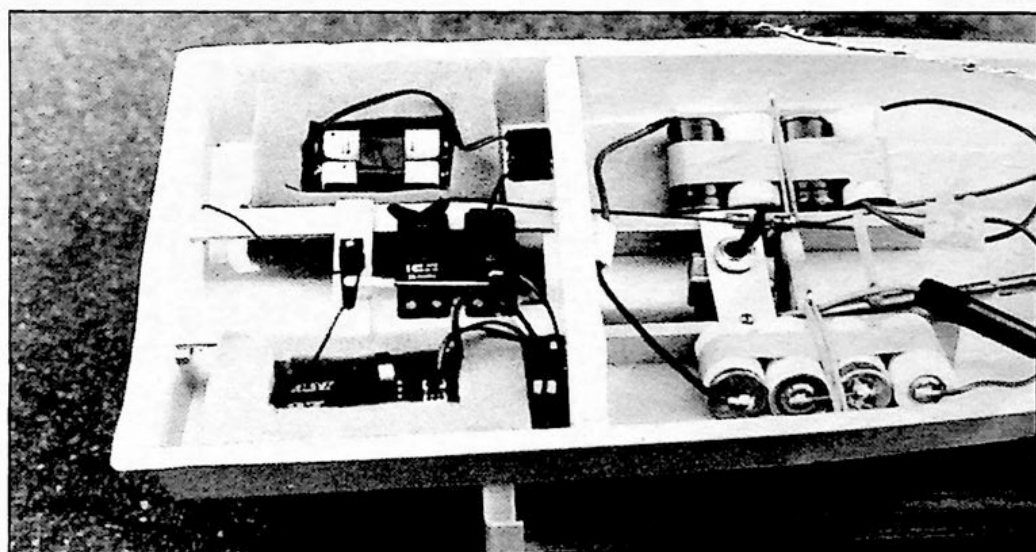


Left: all items fitted except radio. Below: close up of radio installation. Note wire link from servo to motor switch.

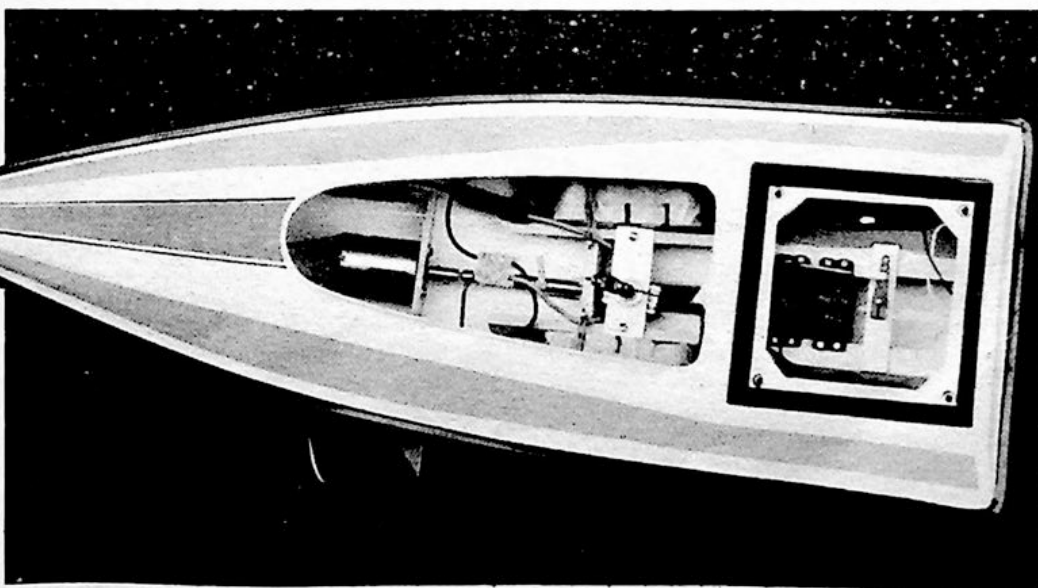
nice feature, since it is a great help whilst building this model.

All the plywood parts are partially die-cut on one sheet. Fortunately only light cutting was needed to remove them. Some care is required to drill and cut the holes in the motor mounting plate, but even I, of the five thumbs on each hand fame, managed it whilst sat in the garden chair on a sunny afternoon.

I suspect our German friends are instructed to start with the motor and work backwards but with my perverse Yorkshire nature I started at the stern and worked forwards. The servos are mounted on ply rails and the dimensions shown match Sanwa servos. If you are using a different make then check before sticking anything. The plans show the top of the rudder tube stuck to a crosspiece which seemed rather vulnerable to me. The crosspiece was replaced with some scrap ply, through the



Below: Barracuda completed. Pity it isn't in colour then you could see how patriotic Glynn's colour scheme is. All photos by the author.



final part of fitting out the hull was to install the wooden battery pack retainers. Two packs either side of the prop tube and held in place with elastic bands were shown on the plans. I used the same basic idea but increased the spacing between the packs so that I could install my favourite switch. Experience has suggested that the small micro-switches as shown on the plans are none too reliable when used on fast electrics, and I favour a car accessory type of toggle switch. This needs an extra hole in the bulkhead for the wire link between servo and switch. The batteries were prevented from sliding about by fixing some thin foam under them.

Deck

With the hull finished, attention was turned to the deck. Cutting out the access holes for the motor/battery and radio compartments was easy but the indent lines for the latter need reinforcing with a

(Continued on page 415)

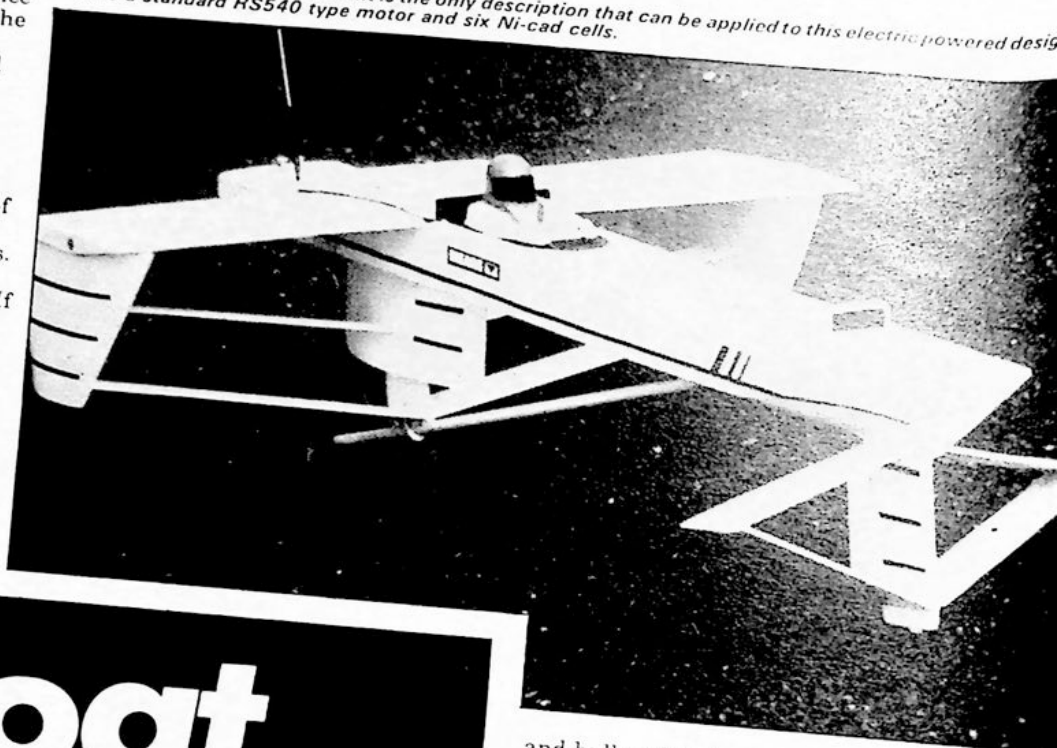
The idea was to design an electric model hydrofoil which gives the appearance of a scale 'off-shore' powerboat, hence the scale man which adds to this idea.

A hydrofoil requires speed for lift and the idea is to provide sufficient for an early 'take-off' speed. The main arrangement was arrived at by the following requirements, a hull — simple but functional, out-riggers — for attachment of the foils, and some form of buoyancy at the extremes, but the whole to clear the water in foil borne conditions. The centre buoyancy tank is only for radio batteries (to act as a keel/ballast). If no R/C batteries are required, then leave off this tank and extend the centre strut.

Construction

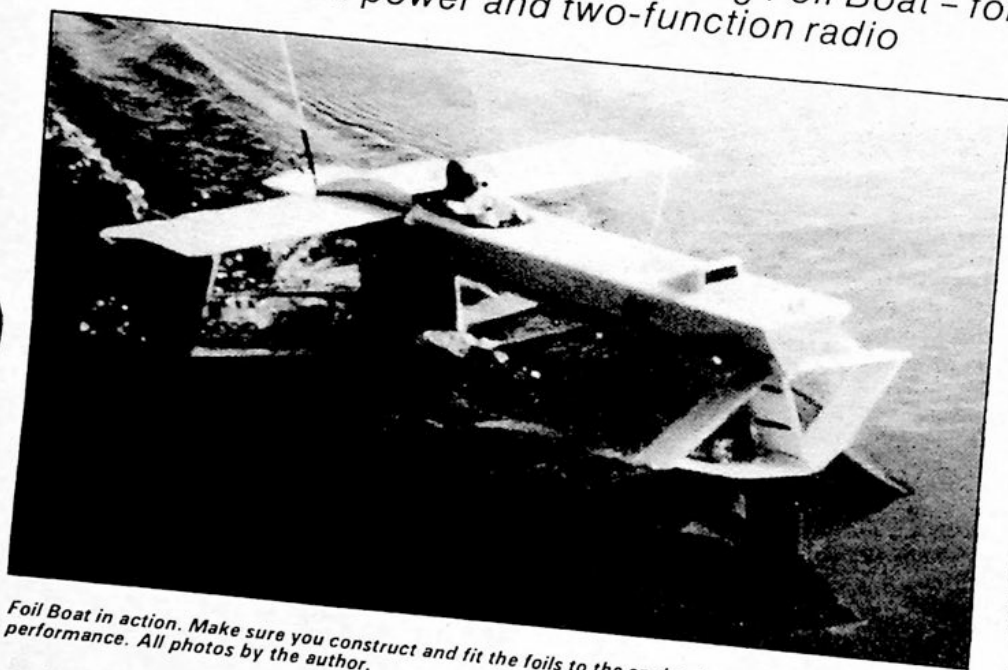
Construction is of 3mm and $\frac{1}{32}$ in. marine plywood (don't forget to use waterproof adhesive). Begin with the hull — cut out the sides, top and bulkheads B1-B4, keel and bow section; cut the top piece into the two sections required. Lay the

Something completely different is the only description that can be applied to this electric powered design. Uses a standard RS540 type motor and six Ni-cad cells.



Foil Boat

Have fun with F. J. Macclay's intriguing Foil Boat — for 7.2 volt electrical power and two-function radio



Foil Boat in action. Make sure you construct and fit the foils to the angles shown on the plan for the best performance. All photos by the author.

sections down and glue to the sides, only the two bow sections, bulkheads B1-B3 and keel. Later, when dry, add the bulkhead B4 and stern sections. Finally cover the lower hull with $\frac{1}{32}$ in. ply.

The wing section (to give lift) is made next, by cutting a piece of $\frac{1}{32}$ in. ply to 450 x 150mm (18in. x 6in.) and gluing it to the triangular leading edge wing section, followed by the two 12mm x 9mm and 12mm x 3mm obeche pieces, both 450mm long (18in.) When dry, cut out these sections from the hull sides and glue in position. Add the lower $\frac{1}{32}$ in. ply to the undersides of the wing section. When the

wing is complete, cut out a hatch section for the batteries (7.2v Ni-Cads) and cut through the 310° timber sections which form the wing, to enable you to have a clear box section for the Ni-Cads.

The three tank sections are simply made from two 3mm ply sections, connected by 12mm x 3mm obeche struts, and then all covered with $\frac{1}{32}$ in. ply. The hardest part is to cut the tops to the wing profile (2) and the centre to match the profile of the hull (1). If using receiver batteries — cut access through the hull into the centre tank section (through the keel). Glue the tanks to the wing section

and hull and make sure they are sealed. Add a 50mm x 3mm ply strut for prop to the centre tank. Glue and pin the front foil centre section to the hull.

Care must be taken when cutting out the foils, as these sections give the lift — they are cut from 50mm x 3mm thick plywood, with the underside being a flat and the top curved, to detail as on drawing.

Glue the rear top foils, and line through with the No. 2 position on the drawing, and the lower rear foils, and line these through with No. 1 position. The reason for the difference in angle of attack is more lift and foil is needed at slow speeds. When at speed — less foil — less angle of attack — by this time the model has accelerated sufficiently and the hull is clear of the water.

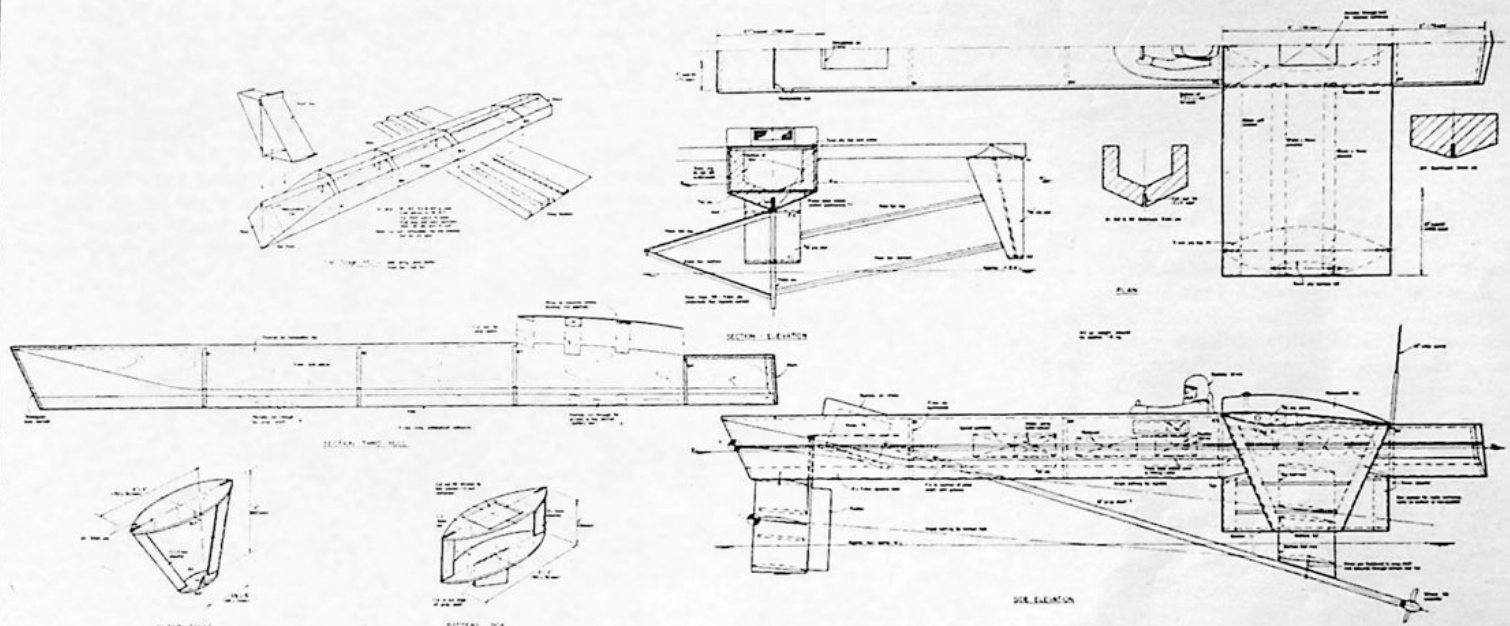
The front foils are straightforward, add the four foils, carefully, and pin into hull section. The reason for this is that the front foil is first to hit any obstruction or debris and is likely to be damaged.

Add the rudder — simple enough — but when installing the radio servo for steering, make sure you have the rudder operating the opposite way to the normal installation for a boat, i.e. left on plan — for a right turn — okay!

Add false air intake, driver from a model car, and removable top (the removable top need only be taped on).

Fit out the boat with radio control on double-sided tape and secure to the false base. Secure the '15' motor to a solid and secure mount. Glue and pin prop shaft to centre strut and pin through foil sections, fill top section of prop shaft with grease. Paint model as required — this model — all white with a thin black waterline and horizontal lines to give heights of boat in foil borne conditions.

The photographs show the completed model and the way in which it travels over the water. The whole model (complete with Ni-Cads, radio) weighs 1.6kg (3lb. 8oz.) and travels at a speed of approximately 2.750M/second (9ft./second) when foil borne.



Full size copies of the single sheet plan reproduced above are available from Model Boats Plans Service. Please quote plan number MM1376, price code F, £3.60 plus 50p post and packing, and send to PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS.

Barracuda - From page 413

felt tip pen for clarity. Triangular plywood pieces are fixed to the inside surface of the deck to act as anchor points for the radio hatch cover bolts. Unfortunately there was no indication of how you should drill and tap the holes in these ply pieces to accept the nylon bolts. I tried a tight hole and found that nylon bolts don't self tap very well. The correct method may have been hidden in the German instructions but I opted to use four blind nuts as used to hold wings on model aircraft, a neat and effective answer. The hatch is rendered watertight by sticking the rubber strip around the hatch recess in the deck top. The receiver aerial was shown bolted to the hatch, not my favourite idea, since if you catch the aerial whilst sailing (for example sailing under an over hanging tree branch) the hatch cover could be ripped off. A brass tube, into which the wire whip aerial plugs, was fixed through the deck, and its lower end firmly glued into a hole in servo rails.

Fixing the deck to the hull is easy provided you work quickly to avoid the cement drying before you join them together. Numerous clothes pegs and/or bulldog clips can hold the deck/hull flanges together whilst the cement sets. A careful check for gaps between bulkheads and deck needed to ensure bow and stern compartments are waterproof. Although no rubbing strip was supplied with this kit I decided to fit one over the hull/deck flange. Not only does it smarten the model, it also protects this joint against rocks and scrapes which always seem to open. Final decorative act was to use the adhesive transfers to break up what

would otherwise be a very plain appearance. I replaced two of the red transfers with blue tape, partially for patriotic reasons — and also a reluctance to turn the model into a floating billboard for the manufacturer.

Sailing

First a confession. I used an RS540 motor (MFA Hummingbird 15 actually), and 8×1.2 nicads, rather than the RS550 and 10×1.2 nicads as shown on the plans. The choice of motor was simply due to availability, but the number of nicads was deliberate — I like to be able to recharge a pack from my car battery without having to break it up first.

No indication of the c of g point was given on the plan. In my model it worked out about 9in. from the transom, which proved fine. The nose was high enough without any porpoising. Using the P35 propeller provided the model ran at a speed of 10-12ft/sec. (7-8mph) and a rudder throw of some 20 degrees gave safe turns down to about 10ft. diameter.

The rudder response was very crisp and the model would immediately run straight upon centralising the rudder stick. The full speed runs lasted for between four and five minutes, and with the absence of any cooling the motor became very warm — too hot to hold in fact — although it has not suffered any damage yet. Different props were tried but anything larger overloaded the motor and gave much shorter duration runs, whilst smaller ones gave some increase in duration

but speed was down and I came back to the P35 size every time.

I couldn't resist it, and the skeg came off one afternoon. Scrap ABS sheet formed a patch over the hole, and plastic filler well rubbed down produced a smooth hull bottom before reinstalling the propeller tube. The speed was up slightly at 13-14ft/sec. (approx. 9mph), but the handling was otherwise unchanged. The sailing weight of the model was about 3.3lb (1.5kgm) with the 540 motor and 8×1.2 nicads.

Conclusions

Not a difficult kit to build, despite the lack of written English instructions, although, like all models should receive, it requires some thought before attacking it with a knife. Once the excess ABS was trimmed off the model it went together easily, the only problem area being the bolts securing the radio hatch.

Performance was good; whether you consider it desirable to remove the skeg or not depends on how competitive you want to be. Although this model is, I suspect, not intended as a fast steering model, it could give a good account of itself on an F3 'cloverleaf' type of course. In terms of multi-racing, its large size, for 540 or 550 motors, could be an advantage in the normal rough and tumble encountered in this type of event. Of course, if you are looking for a fun boat, for general sailing, then I can certainly recommend Krick's *Barracuda* kit. Distributed by Micro Mold, retail price is £30.65.

Last month I described some of the mystique surrounding the business of cell selection for Electric Multi, and set out the broad outlines for a computer controlled cell testing and selection 'machine'; a project which occupied me much of last winter. It kept me from building any more boats too, which pleased my wife, as the house is fast filling up with abandoned boats which must not be thrown out because they are still in working order.

To recap, briefly, what I wanted was a system for repeatedly charging and discharging a pack of cells, under controlled conditions, and measuring each cell's voltage and the current at regular and fairly frequent intervals. This job is difficult to do with any degree of accuracy by manual clock and voltmeter methods and also incredibly boring, hence the use of a computer.

discharge part at the top. Relays A and B are arranged so that with A 'on' and B 'off', the cells are set to discharge through the main resistor. With B 'on' and A 'off', the cells are connected to the charger. Should one lose power for any reason, e.g. a power cut, then both relays go 'off' leaving the cells unconnected and hence safe. Just below relay B, is the current sensing resistor of 0.05 ohms which connects to the voltage measuring Channel No. 2 on the Beeb's analogue port, via the polarity reversing relay D to keep things the right way round on both charge and discharge. Relay D is energised at the same time as B to give correct polarity on charge, and hence reverses on discharge, when B goes 'off'.

That is all quite straightforward, once

total of around £15.

The 74154 chip is a 4 to 16 line decoder, which in simple language means that you tell it, in binary terms on the data input lines, which output line of the 16 you want active and, when enabled, it activates that output line. A mixed blessing is that only one output line can be active at a time, which is fine for the cell voltage measurement but means you can't at the same time control the other charge/discharge relays from this chip. 'Activate' means what it says; most 74 series IC's have active low outputs, meaning that they prefer to 'sink' current rather than provide or 'source' it. To a mechanical engineer like

Cell Sort part two

Dave Selby invokes the use of a BBC Microcomputer to help select the best Ni-Cads and to take away the chores of recycling

Fig. 3. Heatsinks and current sensing resistor. The main discharge resistors must be able to sink at least 360 watts safely for 10 'D' size cells.

"Why cycle the cells?" one may ask. Well, there is a widely held view that cells improve with cycling under the very high rates of discharge used in Fast Electric racing, and it certainly seems to be true that a boat goes better on the second or third run in a day, but whether it is really true and for how many cycles, will, we hope, be determined by the project.

As I mentioned last month, I have built several versions of the hardware, each getting over the difficulties of the previous one, and improving the facilities available. The first, working, version was quite simple and reliable and is well within the capability of anyone with a little experience of electronic assembly and familiarity with a computer. The latter item is essential as the gubbins is completely useless without the 'brains' of the computer to control it!

One often sees the claim "works off any computer" and it is equally often not true. I make no such claim, except to say that, given an eight-bit data bus and two A/D channels, you could program any computer to control this hardware. I built mine to be run from the BBC model B.

In theory

Figure 1 shows the theoretical circuit, which I will now describe in detail. Starting at the cells, the easy bit is the charge/

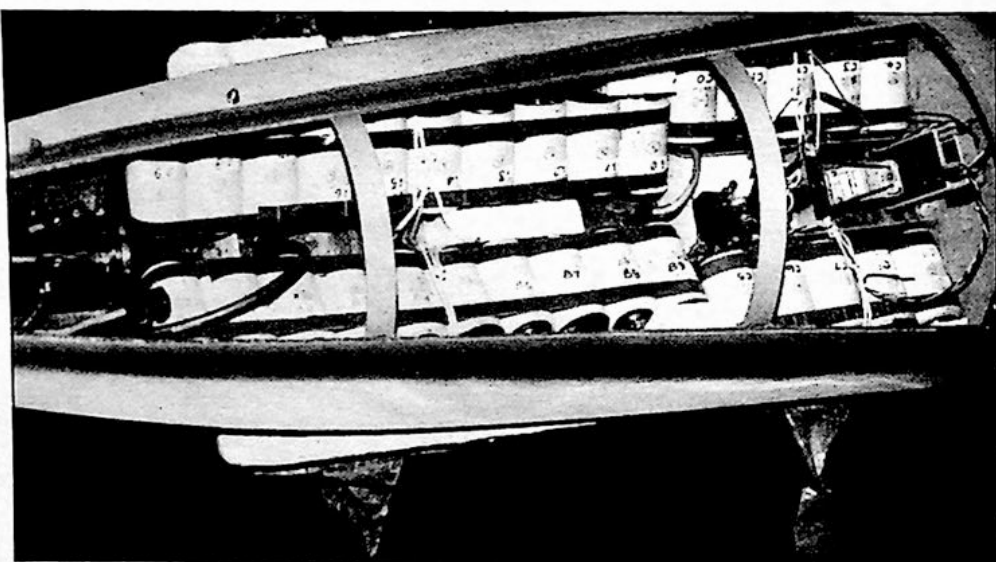


Fig. 5. Boat with 'selected' and documented cells. To those who may say it's not a very good advert, I reply "it depends on what cells you have to select from!" After a while I'll need a Database to keep track of all information.

you' worked it out. Now to the Black-Box bit, otherwise known as the electronics. Only four chips are used, with a total value of around £6, so it won't break the bank. Incidentally, all the relays are fairly readily available from surplus stores, and these are usually of 'meatier' construction than those from 'new' electronics shops. The whole lot cost me as follows: ten pairs of reed switches at 40p, two main relays at £2, two smaller relays at £1.50, making a

me, this is very confusing, but it is possible to get used to it.

The 74154 can only sink 16mA so the two 7407 IC's are connected to it to allow them to sink the reed relay's current of about 30mA per pair. 7407's are non-inverting buffers which duplicate the input signals but can sink 40mA per output. The reed relays A to T are energised in pairs to connect each cell in turn to the voltage measuring bus, maintaining the correct

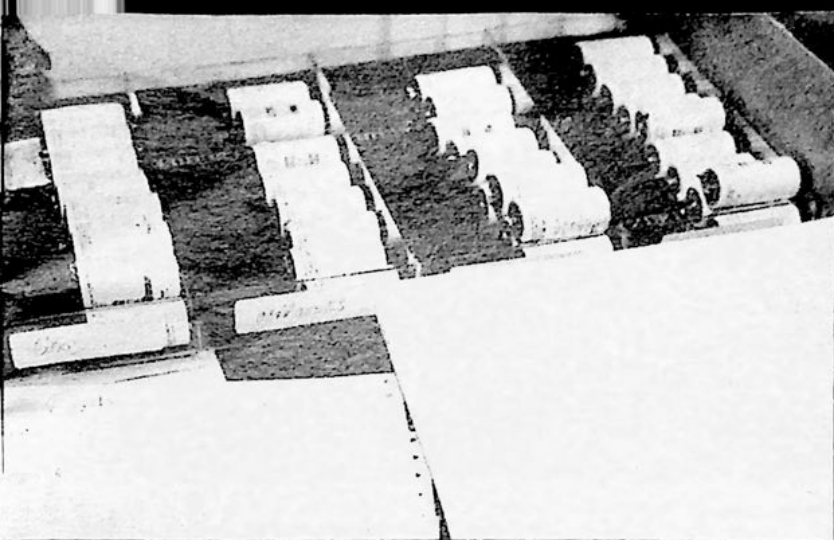


Fig. 4. Cell selection in progress. From the printout an initial selection is made into four categories - good, those which are improving, doubtful and positively useless. Below right: Fig. 2. Quick change system for cells. A crude but effective way to accommodate all sizes of cell for soldered connections. Also gives full air circulation for cooling. Bottom: Fig. 1. Theoretical circuit of Mkl cyclo. Operation fully described in the text.

polarity. Which cell is connected is determined by the data lines D0 to D3, energised by the computer. As an example, if D1 and D2 are 'high' or at logic one, then the addressed cell is number $2+4=6$, and pin 6 of the 74154 goes low, followed by pin 10 of the 7407 and the reeds I and J are energised, connecting cell 5 to the voltage bus. Wait a minute! We wanted cell 6. The reason for this 'error' is that I decided to avoid using pin 1 of the 74154 so that when all data lines are zero or low, no cell is addressed. Consequently, to address cell 6 we must output a '7' on the data bus.

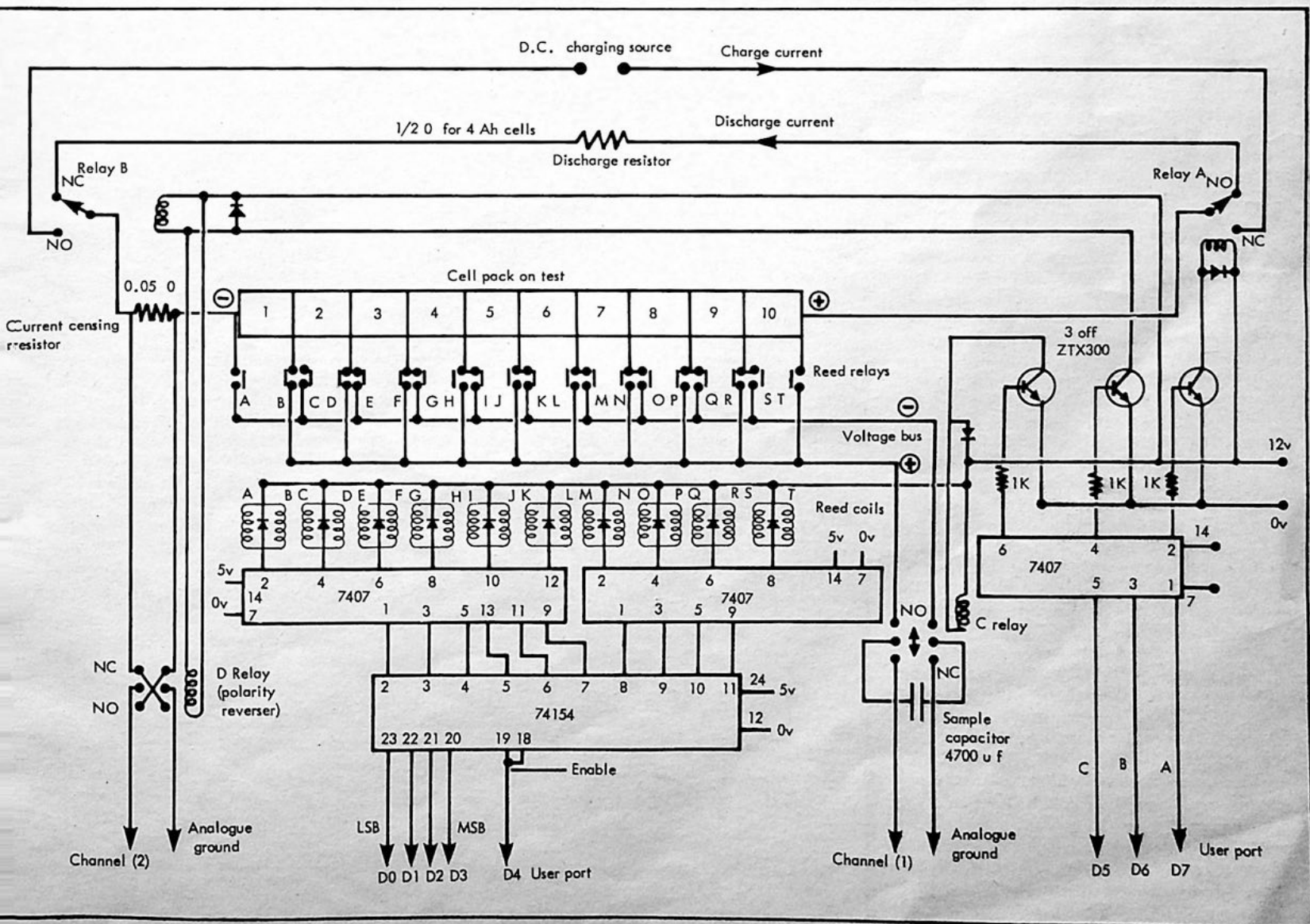
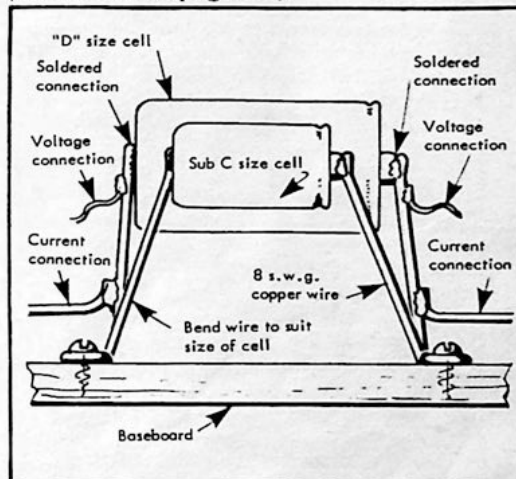
The 74154 must be 'enabled' to activate the output lines by taking its enable pins 18 and 19 low. This is done by data line D4 direct from the computer. The main relays

A and B are controlled by data lines D6 and D7, via another buffer 7407 and a small transistor each. These relays need about 75mA each, which is beyond the 7407's ability, hence the transistor. Relay C is the 'crafty' bit to enable us to sample cell voltages which are not directly referenced to zero volts. The Analogue port on the Beeb will only measure voltages in the range 0 to 1.8 volts, and one line of the input is at zero volts. Cell 10 is at 12 volts or more above zero, so I used a two-pole changeover relay to first connect the capacitor to the voltage bus, and then switch the capacitor to the analogue input. Presto! the Beeb is happy with us and the system works, because the capacitor holds the cell voltage for a few seconds at least,

and the Beeb needs only 10 milliseconds to measure the value.

In this version, the discharge resistor was four 0.5 ohm resistors in series/parallel on a pair of 0.65 deg C per watt heatsinks. This proved quite capable of handling the peak wattage resulting from 30 amps times 15 volts at the start of discharge of a pack of 4 Ah cells. The current measuring resistor was a pair of 0.1 ohm resistors in parallel on a 3 deg C per watt heatsink. Calibration to a digital ammeter was done with this resistor hot, and a factor applied to the result from the Beeb's analogue port to correct the value for current.

(Continued on page 435)



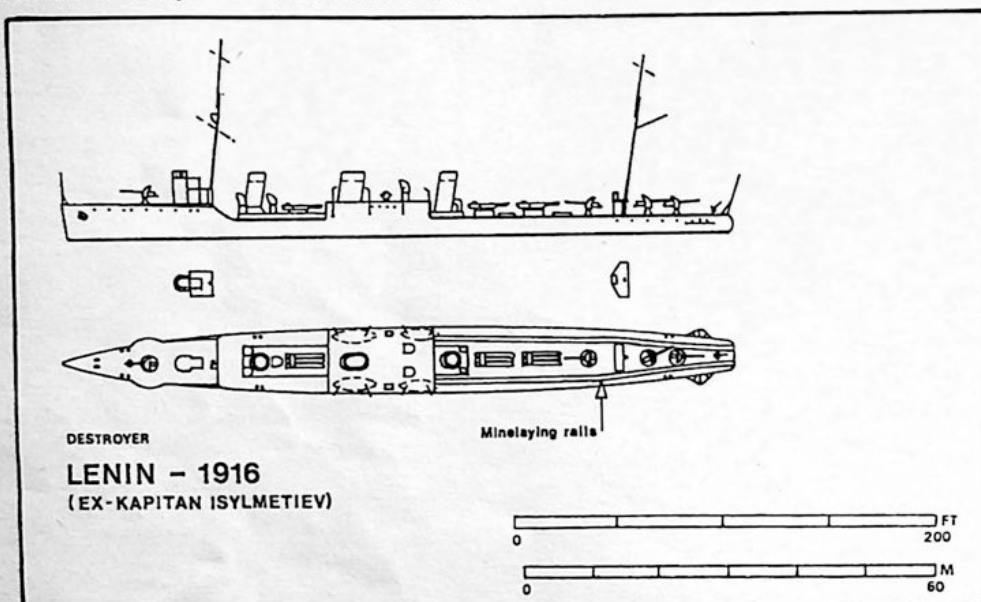
There is very little specific information available from Russian sources on the activities of the Red Fleet in World War 2 and still less on the details of the ships involved. What is known has had to be pieced together from various sources the most prolific being the records of German Intelligence. The Soviet Navy was not given the attention afforded the Red Army and it did not have any great victories, such as Stalingrad, to record in its fight with the German Kriegsmarine. It certainly did very little to help the Royal Navy in getting Allied convoys to Murmansk and

Fighting Fleets

In Miniature

by Michael Ainsworth

No. 225 Soviet Destroyers of World War Two - Part One



Archangel in what must have been the toughest theatre of war to face a naval force.

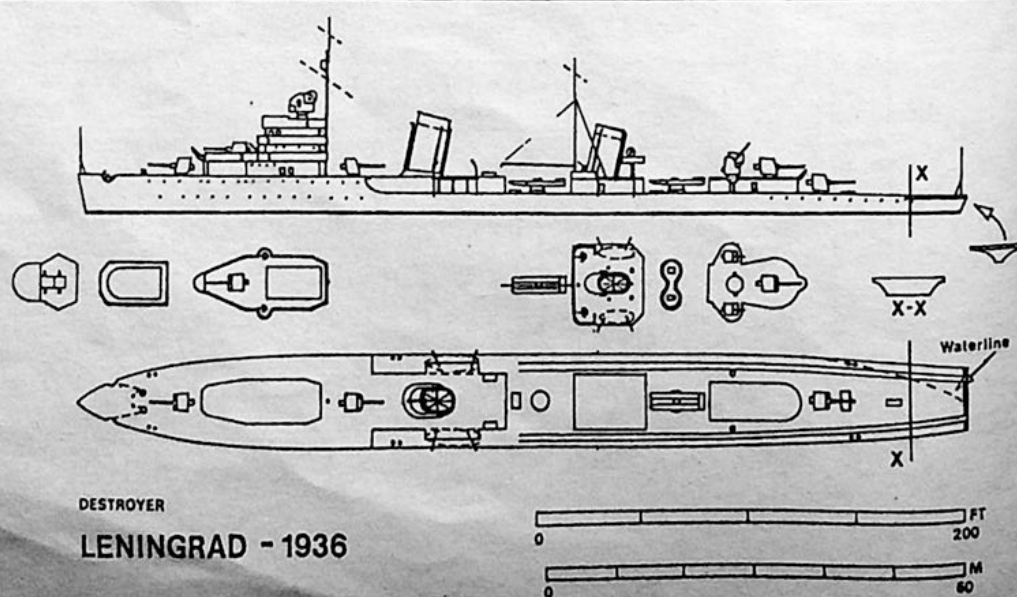
The Red Fleet, in common with other Soviet services, suffered from the Stalinist purges of the Thirties in which many highly competent officers, their loyalty in question, were put to death or otherwise removed from an effective role. Soviet shipyards also lacked the skilled artisans to build modern warships and the Soviet Union frequently had to turn to her future enemies, notably Italy but, to a lesser extent, Germany, for design expertise and, in some cases as we shall see, the ships themselves. The Russians had produced some excellent destroyers during the Czarist regime in the First World War but, even then, were still recovering from the debacle of the Russo-Japanese War of 1904-05 in which the major part of their fleet had been destroyed by the Japanese. She entered World War 2 with a number of these still in service, ten in all, to which had been added a further seven sisters completed after the Revolution. Typical of these World War I ships was the *Lenin*, formerly the *Kapitan Isylmetiev*, completed in 1916.

Lenin and her sisters were large ships by World War I standards, displacing over 1,200 tons (over 1,600 tons at full load). They were built to a design prepared by the German shipyard Vulcan located at Stettin. The lead ship *Novik* was at least double the displacement of the largest destroyer previously built for the Czarist Fleet and she created quite a stir in foreign naval circles with the claim of being the fastest destroyer in the world. *Novik*, renamed *Yakov Sverdlov*, was still with the Red Fleet when Germany attacked Russia on 22 June 1941.

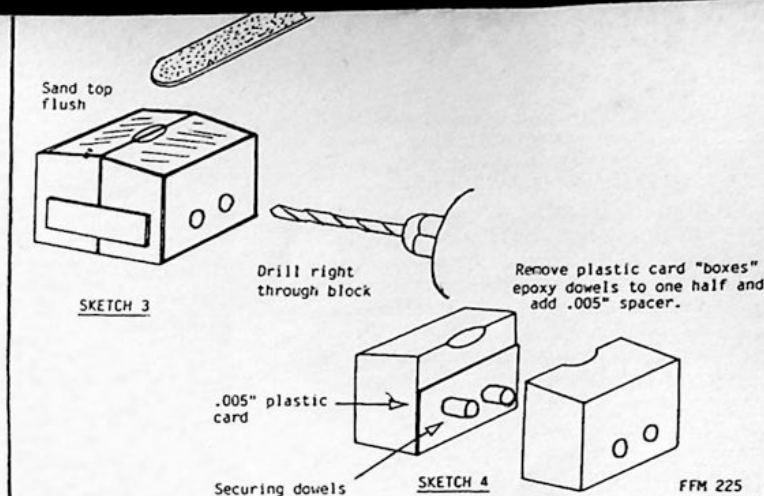
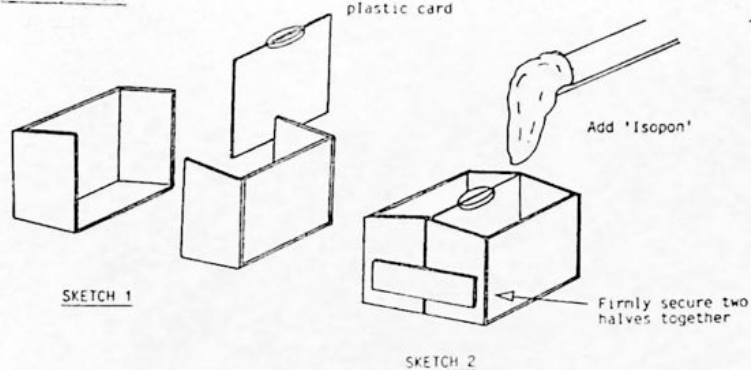
A curious feature of the design was the close spacing of the two 4 inch guns at the stern. They were by no means identical sisters and the 17 ships were divided into no fewer than six groups with a wide range of completion dates. Group 1 comprised *Yakov Sverdlov* (ex *Novik*) completed 1913; Group 2 — *Frunze* (ex *Bistry*) 1915; Group 3 — *Karl Marx* (ex *Isiaslav*, ex *Gromonosets*) 1916, and *Kalinin* (ex *Pryemislav*) 1927; Group 4 — *Lenin* (ex *Kapitan Isylmetiev*) 1916, *Voikov* (ex *Trotski*, ex *Garibaldi*, ex *Lieutenant Ilin*) 1916, *Kuibishev* (ex *Zhdanov*, ex *Rykov*, ex *Kapitan Kern*) 1927, and *Karl Liebknecht* (ex *Kapitan Belli*) 1928; Group 5 — *Uritsky* (ex *Zabiyaka*) 1915, *Volodarski* (ex *Pobedityel*) 1915, *Artem* (ex *Zinoviev*, ex *Azard*) 1916, *Engels* (ex *Desna*) 1916, and *Stalin* (ex *Samson*) 1916; Group 6 — *Dzerzhinski* (ex *Kaliakria*) 1918, *Nyesamozhnik* (ex *Zante*) 1923, *Shaumyan* (ex *Levkos*) 1925, and *Zhelezniakov* (ex *Petrousky*, ex *Korfu*) 1925.

Seven of the class served in the Baltic and all were war losses. *Lenin* was scuttled to avoid capture by the Germans only two days after the German attack on 22 Jun 1941. In July German and Finnish naval forces collaborated in the laying of a mine barrage in the Gulf of Finland north of Juminda and this was to claim many Soviet ships, *Engels* on 24 Aug 1941 and no less than four others, *Artem*, *Kalinin*, *Volodarski* and *Yakov Sverdlov*, on 28 Aug 1941. *Karl Marx*, meanwhile, was lost to an air attack on 8 Aug 1941. In the Black Sea three of the five ships to serve there were lost; *Frunze* to bombing on 21 Sep 1941, *Shaumyan* by stranding in April 1942, and *Dzerzhinski* by mining on 14 May 1942. The two other Black Sea ships, *Nyesamozhnik* and *Zhelezniakov* were scrapped after the war, the latter after a period of service with the Bulgarian Navy. The three that served in the Arctic, *Karl Liebknecht*, *Kuibishev* and *Uritsky*, and the two that served in the Pacific, *Stalin* and *Voikov*, likewise survived to be scrapped after the war.

The next class of destroyers to be built, the first such ships since the Revolution, was of Soviet design but with technical advice from the French and Italians both of whom had amassed some experience in building large so-called super-destroyers. The result was the *Leningrad* Class which bore a strong resemblance to the Italian *Navigatori* Class with their widely spaced funnels. There were six ships in the class, *Baku*, *Kharkov*, *Leningrad*, *Minsk*, *Moskva* and *Ibilisi*, all built between 1932 and 1940, some taking as long as five years to complete. Their somewhat top-heavy appearance was not an illusion, they were unstable and poor seaboats and underwent several modifications, but to little avail. The two Baltic ships, *Leningrad* and *Minsk*, survived the war but only after the latter had been sunk by German air attack at Kronstadt in September 1941. She was salvaged and returned to service in November 1942. They were both scrapped



MODELLING HINT



postwar. The Black Sea pair, *Kharkov* and *Moskva*, were both lost, *Kharkov* being sunk by German aircraft off Crimea on 6 Oct 1943 while *Moskva* fell victim to a mine off Constanza on 26 Jun 1941. *Baku* served in both the Pacific and Arctic theatres, transferring to the latter in October 1942, while *Tbilisi*, another Pacific ship, stayed on the east coast. Both survived the war and were scrapped in the Sixties.

Apart from their unusually top-heavy appearance these ships had another unique feature — their stern. There was a distinct knuckle a few feet below the deckline aft, below which the hull had an extremely concave flare extending down to the waterline which came almost to a point. This may have been an attempt to improve minelaying capability — they were equipped to carry up to 84 mines — but was not repeated on any subsequent ships.

Particulars of the two featured ships were as follows:

Lenin

Built: Pulilov Works, Leningrad 1913 — 1915
Displacement: 1,260 tons (1,620 full load)
Machinery: 31,500 SHP — 24 knots
Armament: 4 — 4 inch; 1 — 3 inch AA; 9 — 18 inch TT.
Complement: 168

Leningrad

Built: Zhdanov Yard, Leningrad 1932 — 1936
Displacement: 2,225 tons (2,582 full load)
Machinery: 66,000 SHP — 36 knots
Armament: 5 — 5.1 inch; 2 — 3 inch AA; 2 — 45mm AA; 8 — 21 inch TT.
Complement: 250

Colours of Soviet ships were medium grey overall (4 parts white to 1 part black), black waterline with, in peacetime, a white dividing line between it and the grey of the hull. Decks were dark grey.

Modelling Hint

A few issues ago we described a method of making ships' boats out of plastic body filler by pressing a master into a bed of 'Plasticine' and then filling the depression with the filler. There is still quite a bit of work necessary to finish off the boat and this is not a very onerous task on a warship model where the boats are few in number. When there are a large number of boats,

however, such as on a liner, the task of making a number of identical boats becomes somewhat daunting. The method here described involves some effort to start with but this will pay dividends later on.

The first step is to build a suitable mould in which the boats can be cast using body filler. The mould itself is also of the same material, a somewhat unusual situation as most moulds and casts are of dissimilar materials. To make the mould we must first construct an open-topped box into which the body filler will be placed. Size is not important since the boat will be very small and all that is required of the mould is that it be easy to handle; a dimension of 1 inch wide by 1 inch high by 1½ inches long is a good size to work with. The box is made in two parts as shown in Sketch 1 with the two short ends being 1/16th inch higher at the joint than at the outer edge. The reason for this will be apparent later. The box can be made from plastic card or similar material which separates easily from the hardened body filler.

The master boat is then made; this must be very accurately done as all subsequent copies will be identical. You may, if you wish, make two of different sizes to go into the same mould but the sketches only show one. Once the boat has been made to your satisfaction it should be cut in half lengthwise and the cut faces sanded down to allow for the thin piece of plastic card on which the two halves will be mounted. This piece of card should be as thin as possible, say .005. The boat halves should be glued to either side of the thin card, at the centre if one mould is being made and suitably spaced if more than one.

The two halves of the box are then brought together with the boat centred as shown in Sketch 2. Since you will be ladling in a stiff mix of body filler make sure the box is firmly held together with glue or external retainers. The box is then filled with body filler and left to set. Once set the top should be sanded to the profile of the end pieces and two holes drilled right through both halves (Sketch 3). The holes will be the same diameter as the two retaining dowels which should preferably be of plastic of about 3/16ths of an inch diameter. The box can then be dismantled; you may be able to salvage all or some of it for another time.

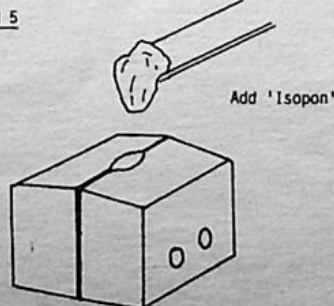
The two halves, when separated, will have half a boat in each. The two halves should then have the dowels installed. They must be a snug fit but capable of sliding within the drilled holes. Secure the dowels to one half with epoxy leaving about 1/4 inch protruding; bevel the protruding ends to ensure an easy entry into the other half. A filler strip of plastic card is then placed over the protruding dowels; this should be the same thickness as the card used to mount the master boat. This should only extend up to about 1/16th of an inch below the boat (see Sketch 4).

You are now ready to cast your first boat; a light coating of thin oil on the contact surfaces will help release later. Assemble the two halves of the mould and then add body filler to the small depression in the top, forcing it down into both the depression and the joint between the two parts (Sketch 5). As soon as the initial set has occurred, i.e. when the material has become like a firm jelly, carefully cut away any material that is extruding from the top of the mould. A sharp razor blade cutting across the mould surface will do the trick (Sketch 6). The two halves are then pulled apart leaving a boat nestled in the depression of one of the halves. This will have a quantity of "flash" around the bottom and ends due to the filler penetrating the crack; this should be cut away as shown leaving a small piece protruding all round to represent keel, rudder etc. It can then be removed from the mould and should require no further work other than painting. It will represent a boat with canvas covers in place, hence the flat inverted V of the top. The covers must then be represented with paint, usually a pale grey, and this should extend down the side of the boat to show the tie-down positions.

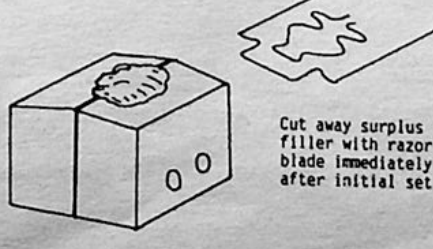
Because both mould and casting are of the same material it is very important that you do not leave the casting in the mould too long. Once it sets hard it will adhere quite strongly to the mould and you may not be able to remove it. Since you use a very small quantity of filler for a boat it is uneconomic to make boats one by one as required. You should, rather, keep the mould handy and make a boat each time you mix a batch of filler for other work. In this way you will have quite a little stockpile when they are required.

Next Month: Part II

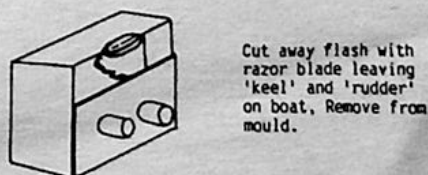
SKETCH 5



SKETCH 6



SKETCH 7



Saturday 27th and Sunday 28th of April heralded the third Millendreath Challenge Event between the Westward Offshore Model Power Boat Racing Association (WOMPBRA) and the Offshore Model Racing Association (OMRA). It is a two day event with one day given to offshore racing using ski-boats as pursuit craft; the second day is devoted to endurance racing. Trophies are awarded on the individual days and the results aggregated to give overall placings.

Accommodation is in the Millendreath Holiday Village thus allowing social discourse in the evenings and an exchange of ideas on offshore racing in general.

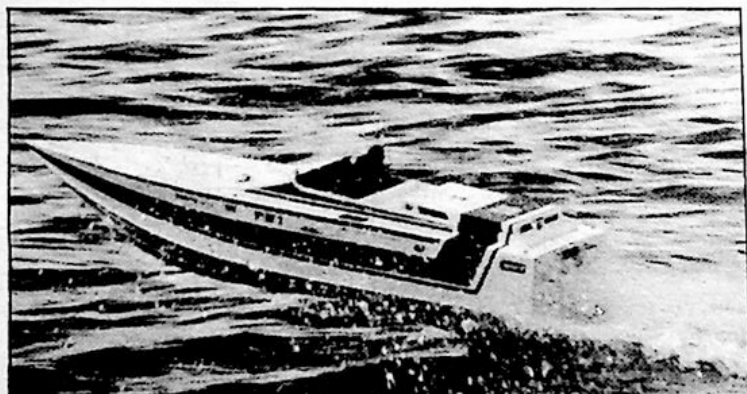
At the final count 27 boats were entered with a good spread of different hull types.

Saturday morning at Millendreath beach launching one of the chase boats.



British Offshore Challenge Trophy

Terry Rittey reports on the 1985 event



Left: T. Ellis' Shead 38 on the plane.

his *Pipedream II* in C Class, also turning in the fastest time for C Class of six minutes 25 seconds. Dave Nash was the first B Class away with his *Pipedream I* and also turning in the fastest time of the day for B Class of seven minutes 23 seconds. A Class was the exception, as neither Alan Baldry's

A Class 0-6.5cc

Dominator
Pipedream
Solent X 3
Spearfish
Predator
Cobra

B Class 6.5-10cc

Pipedream X 4
Orange Box
Huntsman X 3
Corsair

C Class 10-34cc

Pipedream X 3
Huntsman

D Class Petrol

Aristocrat X 4
Shead 38
O/D

Right: the Shead 38 rounding the final buoy.



Webra dominated the glow motors with an Enya and a Picco thrown in for good measure, with Husqvarna dominating the petrol.

Having set the scene let us proceed to Saturday 27th April for the chase boat event. A triangular course was laid out with a buoy at the apex just off Millendreath beach, with two more buoys laid out to the South-West and South-East respectively

giving a long leg parallel to the shore. Two circuits of the course were the order of the day with a 20 minute time limit to allow for restarts and tweaking etc; an average time was reckoned to be six-eight minutes. Not a bad guess as it turned out.

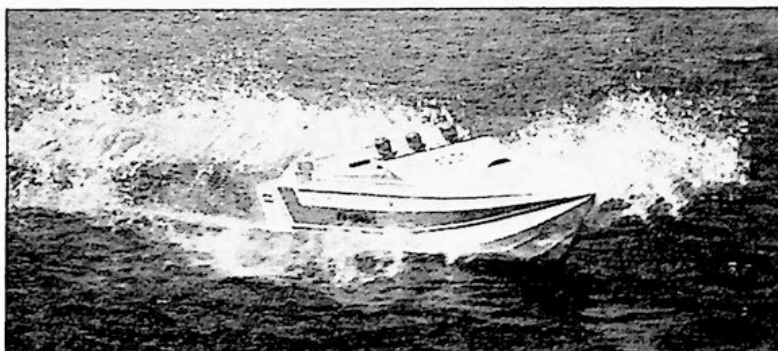
Paul Williamson was first away with his *Aristocrat* in D Class and setting the pace with a time of five minutes 22 seconds which as it turned out was to be the fastest time of the day. Tony Ellis followed with

Dominator or Bob McCarthy's *Pipedream* measured up to Marc Ellis with his *Solent 40*, turning in a time of six minutes 33 seconds. Sea conditions were fairly constant throughout the morning with a good chop on the seaward leg of the course, the other two remaining relatively calm.

Sunday was scheduled for endurance racing and the day dawned with not a cloud in the sky and an off-shore wind which would change during the day to an on-shore



Left: the winners line up, back row, left to right: J. Hilson, T. Ellis, D. Shaw, J. Quelch, D. Nash, K. Marston, B. McCarthy, P. Williamson. Front row, left to right: F. Webb, T. Rittey, M. Ellis, P. Cooper, G. Blackaller. Below: deep concentration from WOMPBRA's F. Webb and B. McCarthy. Bottom left: T. Ellis' Shear 38 in full flight.



one. There were four heats one for each class, each of 40 minutes duration on a clockwise course.

First away were the B Class boats in very flat conditions thus allowing full throttle driving with some tense moments as drivers battled for the optimum line round each buoy. Tony Ellis's *Pipedream I* was revelling in the calm and relentlessly clocking up the laps, closely followed by Frank Webb's *Huntsman* and David Shaw's *Corsair*.

Now it was time for the A Class boats to take to the water which by now had turned distinctly rough, however Frank Webb's *Solent 40* powered its way round with scant regard to chop. Chasing Frank in very leisurely fashion was Bob McCarthy's *Pipedream* and yours truly with my aged *Spearfish*.

The third heat was the D Class boats, the Aristocrats, Tony Ellis's *Shear 38* and Graham Barker's boat of unknown origin. Incredible as it may seem the sea had calmed down slightly, a disappointment to those people who like it rough. This was a closely contested heat with John Hilson and Gordon Blackaller matching one another more or less lap for lap and John Quelch lagging behind them nursing a sick engine.

The last heat of the day was for C Class boats and one B Class driven by Simon Blackaller, one of WOMPBRA's juniors. Five minutes into the heat the rescue boat signalled that they had problems so the

clock was stopped and all models returned to the jetty. In due course the problem with the rescue boat was resolved and the heat continued with Marc Ellis' *Huntsman* leading the way pursued by Keith Marston from Hull with a *Pipedream*. In the closing minutes Keith had the water to himself and ran out of fuel with 12 seconds left to run.

Much speculation and computing was taking place as everyone viewed the results board attempting to work out who the overall winners would be. Meanwhile the organisers retired to calculate the final placings and to put people out of their misery.

Saturday Offshore results

Class A

1. M. Ellis 6m 33s (W)
2. J. Dobson 7m 9s (O)
3. F. Webb 7m 21s (W)

Class C

1. T. Ellis 6m 25s (W) (O)
2. M. Ellis 6m 48s (W)
3. No finisher

Class B

1. D. Nash 7m 23s (O)
2. F. Webb 7m 48s (W)
3. D. Shaw 8m 14s (O)

Class D

1. P. Williamson 5m 22s (W)
2. J. Quelch 5m 30s (W) (O)
3. J. Hilson 6m 1s (W) (O)

Sunday Endurance results

Class A

1. F. Webb 50 laps (W)
2. B. McCarthy 33½ laps (W)
3. T. Rittey 30 laps (O)

Class B

1. T. Ellis 71 laps (W) (O)
2. F. Webb 68 laps (W)
3. D. Shaw 64 laps (O)

Class C

1. M. Ellis 35 laps (W)
2. K. Marston 35 laps (O)
3. P. Cooper 1 lap (O)

Class D

1. J. Hilson 59 laps (W) (O)
2. G. Blackaller 58 laps (W)
3. J. Quelch 46 laps (W) (O)

Overall winners

1. J. Hilson
2. F. Webb
3. G. Blackaller
4. J. Quelch

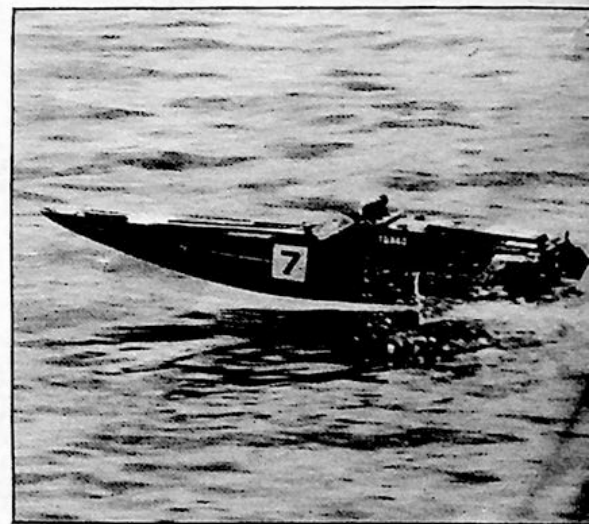
(W) — WOMPBRA member.

(O) — OMRA member.

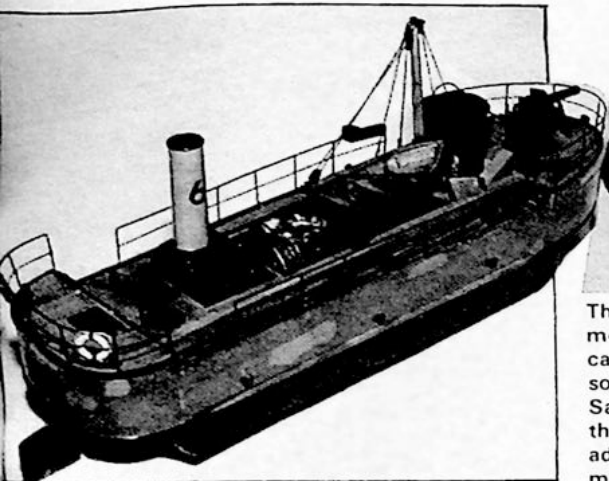
(W) (O) — member of both associations.

All in all a superb weekend's off-shore racing and many thanks to all concerned in its organisation, and if the ski-boat drivers should read this a very special 'thank you' to you as without your help and support we cease to exist as off-shore model racing associations.

Below: Sunday morning looking towards Looe Island with an endurance course buoy just left of centre.

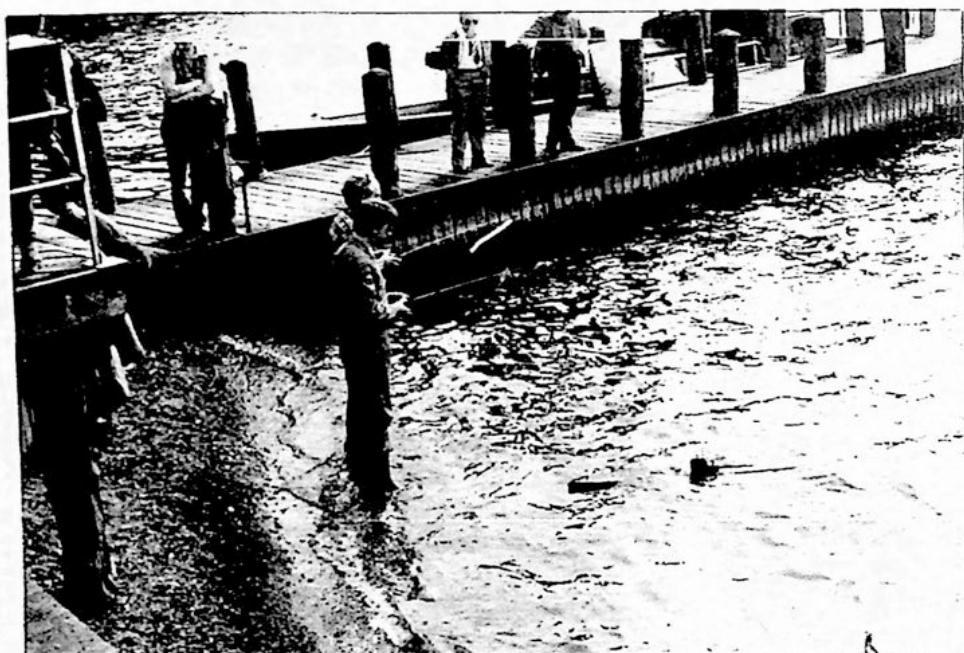


Above: J. Quelch's Aristocat on the plane.

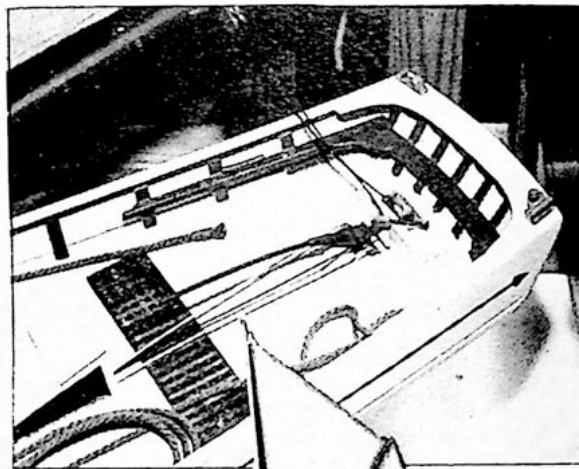


Windermere Steamboat Museum Regatta

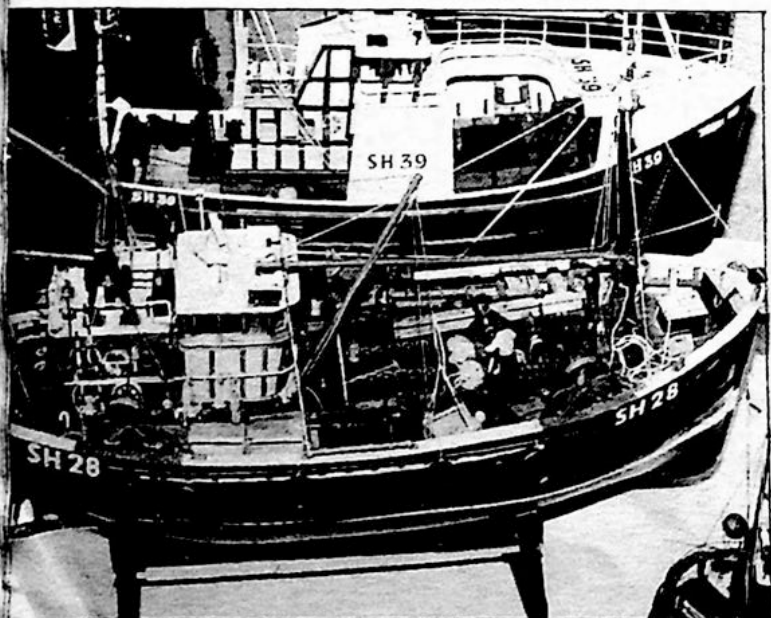
The Third Annual Regatta on 18/19th May was exceptionally well supported with over 80 models from all parts of the country, plus a coach load of visitors from the Sheffield club who came to see what all the fuss was about and who went away determined to put on a similar sort of event on their home waters. There were five static classes which kept judges David Sambrook and John Cundell busy on both days. The models were statically displayed within the museum, and competitors could either sail their models on the lake or on a small pool adjacent to the museum. The enthusiastic support of the museum staff in a superb setting has made this one of the most pleasant events in the model boating calendar.



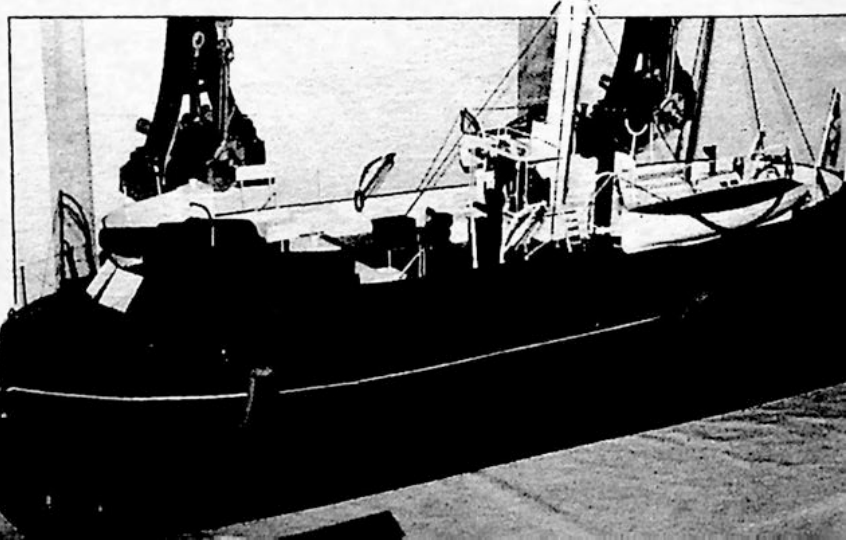
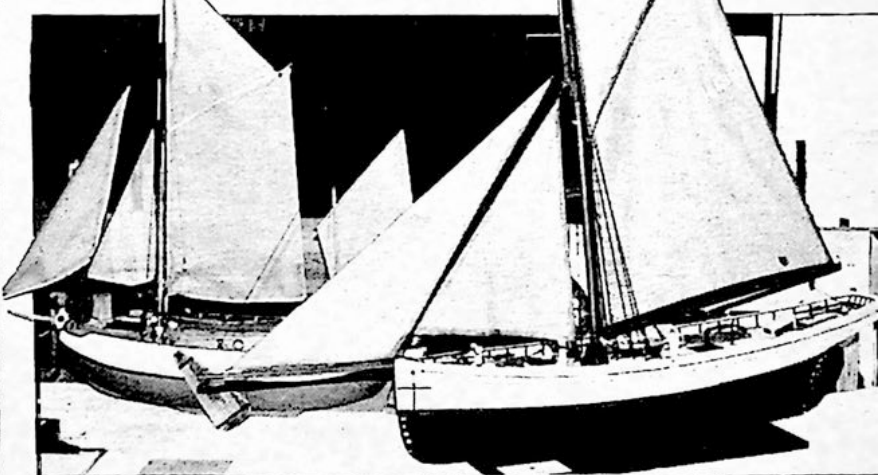
Top left: the Hamtin gunboat (because that was the source of the hull material!) from Mr. Binns caused much humour during the weekend and perhaps deserved an award for the cheekiest entry. Left: Mr. Newton's U-Boat was not entered for judging but provided much interest operating on the lake. Below: main sheet and rudder controls on Peter Spence's trawler, see below.

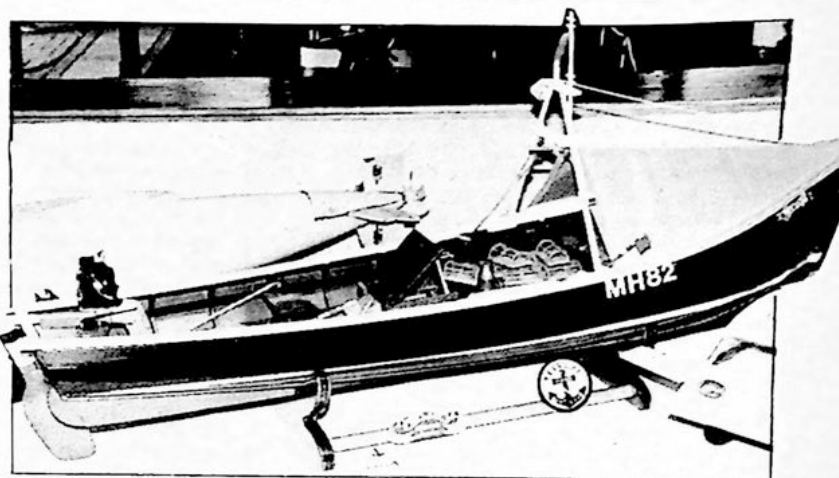


Right: the winner of Sailing Boat class, the Erycina Plymouth trawler by Peter Spence from Monkseaton, Whitley Bay at 1:24 scale, 53in. by 8 1/2 in. beam. The main was under R/C, but not the jib, an effective compromise in a scale sailing model.

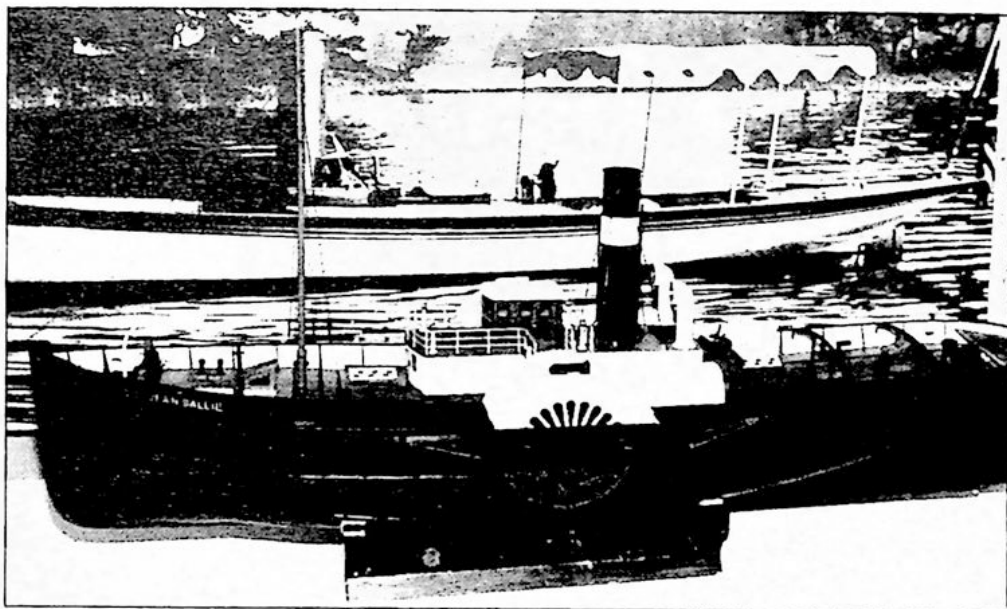


Above: Ocean Reward and Challenge, both by Mr. Hatheron didn't quite make the first three, but both models were very lifelike and packed with detail. Right: John Hollis' Fidget was second in class B for powered boat models; 1cm to 1ft. scale, 50in. overall. John comes from Sheffield.

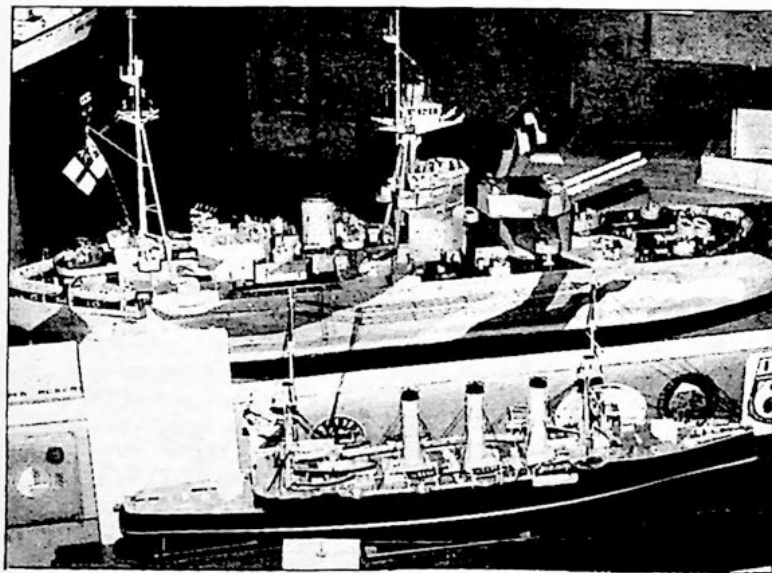
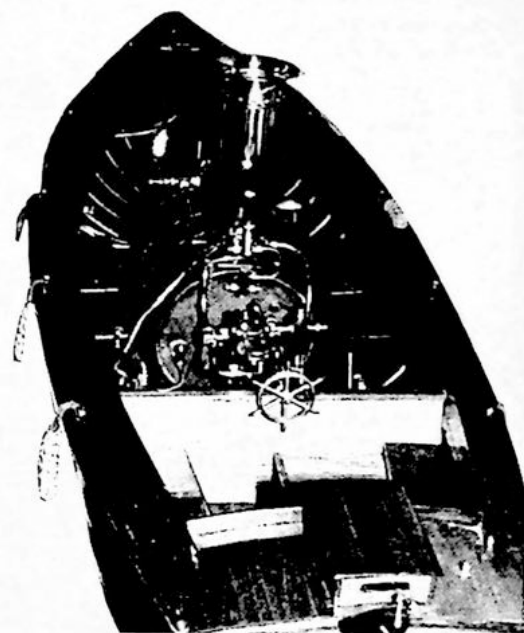




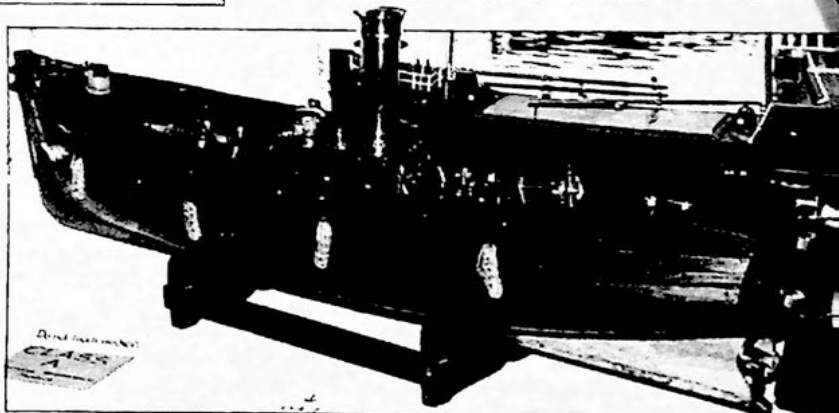
Left: Michael Cox, winner of the Sutcliffe Memorial Challenge Trophy for the best model in the show, his excellent Gondola steam yacht, and his wife chat with museum founder George Pattinson. Above: Mr. Newton's Coble was one point away from third place in class B, another model that exudes character.



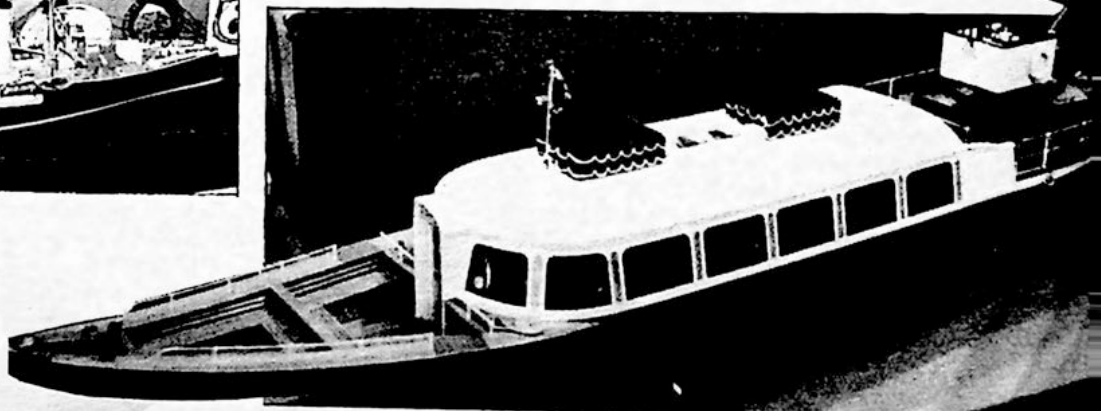
Above: the Iron Paddle Tug by Roy Johnson was third in class B. Built from Underhill drawings at 1:48 scale, the boat measures 37in. by 13in. Extreme right: Maureen steam launch by W. N. Poulton was second in her class. Features a Stuart Turner Double Ten engine and at 1:6 scale.



Above: Ian Macdonald's fine HMS Roberts was first in class B. At 1:76 scale, 60in. by 14in. beam, she is powered by two 12 volt Buhler motors and was built from National Maritime Museum plans. She is a fully operational display model with firing guns.



Above: a fuller view of second placer Maureen, a well turned out model in all departments. Below: this year's winner, the impressive Steam Yacht Gondola, featured in an earlier Model Boats magazine, built by Michael Cox.



I imagine this situation: I have just finished yet another round of nautical dodgems, in last place and out of time; I have hit every mark on the course, done fourteen penalty turns and dented the club hot-shot's boat. A choice presents itself. (1) improve my racing or (2) take up underwater soot-juggling. I am a poor swimmer so I choose the former.

Several seasons later life has become more bearable. I win the occasional race, don't often come last and haven't sunk an opponent's boat all season. Most important of all, my wife now talks to me on Sunday evenings. This remarkable transformation has been brought about by learning the basics: *Those Things Without Which Thou Shalt Continue to Come Last*.

Discovering the basics was not easy. Reading everything I could lay my hands on to do with yacht racing really didn't help much. There was just so much to remember that there was never time to think about what I was actually doing.

By dint of much observation, reflection

course in advance — you can free yourself to concentrate on the pressures of the moment.

The Racing Rules

To be a national level contender you need to know the rules intimately... and perhaps more important, how to make tactical use of them. To be a middle-fleeter, you need to know your obligations and a bit about your rights; that's all. If you are a raw beginner you can find an excellent summary of the essentials in 'The Rules Book' by Eric Twine in the short chapter entitled 'The Rules Everyone Who Races Should Know'. It's pretty easy fare. I do not intend to say much more about the rules because, armed with these fundamentals you can concentrate on boat handling and some tactical basics which will get you out of the back of the fleet much more effectively than being able to recite the entire racing rules backwards in your sleep.

Having got those few fundamentals out

back to the finish... usually all referred to as 'a triangle and a sausage'. I won't distinguish between the last two boats because their main features are much the same.

The Start

Three things make a really good start:

1. Clear air so that you can attain maximum boat speed.
2. Room to manoeuvre so that you can tack if you have to or want to.
3. A good position with regard to the rest of the fleet, not too far off to either side, so that they cannot get a good windshift without you getting it too.

Realistically, your chances of getting all of that correct, right from the outset, are pretty remote... even the best skippers rarely get away without at least a couple of bad starts in a regatta. So, what can you reasonably expect to achieve? Well, with a bit of planning and practice, you should be aim for:

How to stop being a backmarker

Martin Mickleburgh offers practical racing guidance for R/C yachtsmen

and getting it wrong, I have whittled it down to a bare minimum, just enough to carry round in my head while racing.

Will it fit your head...? Read on.

The Golden Rules

1. **Concentrate:** I have lost more races by plain, simple, unforgiveable inattention than I care to remember. If you don't concentrate you deserve your last place. Concentration is aided by: being warm, being dry, being sober, knowing your wife isn't preparing lunch or expecting to be taken to the pub.
2. **Look Around You:** concentration is no use if you concentrate solely on your own boat. You are racing against others; you must watch what they are doing. Imagine where other boats are going to be in a few seconds' time and consider what you will have to do in response.
3. **Stay Out of Trouble:** this one should be written in red gothic script and outlined with gold leaf. Getting tangled up in complicated rafts of ill-behaved yachts will lose you places every time. Close encounters of the boating kind can wait until you have the skill and the confidence to carry it off.
4. **Have a Plan:** yacht racing is never just a question of sailing round a few buoys. There are always numerous decisions to be made about *how* you are going to sail around them. If you take the decisions in advance — even if only half a leg of the

of the way, let's look at each part of the race in turn with a view to developing a check-list of *those things which are important*. The idea is that you will be able to run through the check-lists in your mind to ensure that you have thought about the main problems you will have to face and decisions you will have to take.

The most common course consists of the start followed by the beat to the windward mark; two reaches, separated by the wind mark; a beat back to the windward mark; a run down to the leeward mark and a beat

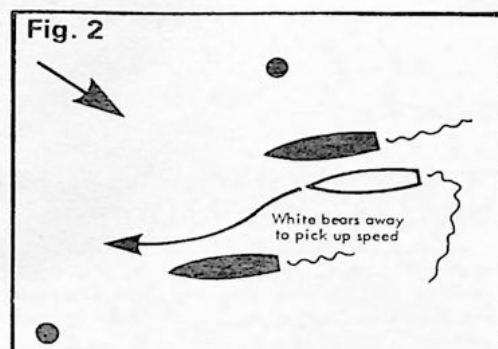
Fig. 1



1. Not being stuck in the pack with no wind and no room to tack.
2. Not being badly late.
3. Not being early.

There are many different approaches to starting (including the "I'll just float about and see what happens" approach). Trying to master them all at once is simply confusing so I am going to suggest that you start with one which, if carefully applied, will generally give you the above: the port reach start (see Fig. 1). The idea is that the majority of yachts will line themselves up on starboard some distance from the line then all try to get to the line exactly on the gun... whilst luffing each other, avoiding beginners and generally getting in each others way. Once you have joined the starboard tack procession you lose almost all of your freedom to manoeuvre. So instead you reach behind the starboard tackers and look for the right gap, one that is reasonably wide, so that you can tack into it just before the gun then bear away to gain speed. The advantage is that you can manoeuvre pretty much as you please until you tack onto starboard, so that with a bit of judicious wriggling, you should get a reasonable start.

The point about bearing away to pick up speed is an important one: if done correctly it will ensure that you are not left for dead while everybody else sails past you. The idea is to ease the sheets *slightly* and bear away ten degrees or so below close hauled. Once you are up to speed, trim your sheets



in and come back onto course. Don't just poke your nose in between two already closely spaced opponents, you need a gap of at least one and half boat-lengths. You must tack into the windward side of the gap, leaving space to leeward to bear away; see Fig. 2.

You will need to keep a close eye on your timing; try reaching up and down the line before the start, seeing how long it takes to get from one end to the other. Then you can circle around, out of trouble to windward of the line and at the port end, until the time comes to make your reach. Don't forget to allow a few seconds for your tack and for general slowing down and manoeuvring around other boats. On a reach you should slow down by letting your sails out, not by luffing, because you can subsequently accelerate much more briskly simply by pulling them back in. This is a skill which is well worth practicing away from the race course.

The very best place to start is often right next to the starboard end mark... so that's where everybody else will be trying to start. You will generally do quite well by aiming for the middle of the line. But be prepared to be flexible; if everybody else looks as though they're heading for the middle, stay out of trouble and go for the ends.

Finally, while you are dashing around, remember that on port, you must steer clear of starboard tackers (look for them on your starboard bow), and look for boats to leeward of you: they have right of way.

Your mental check-list for starting should therefore look something like this: port-reach start, timing, look for a gap, middle of the line, look out for starboard tackers and leeward boats, stay out of trouble.

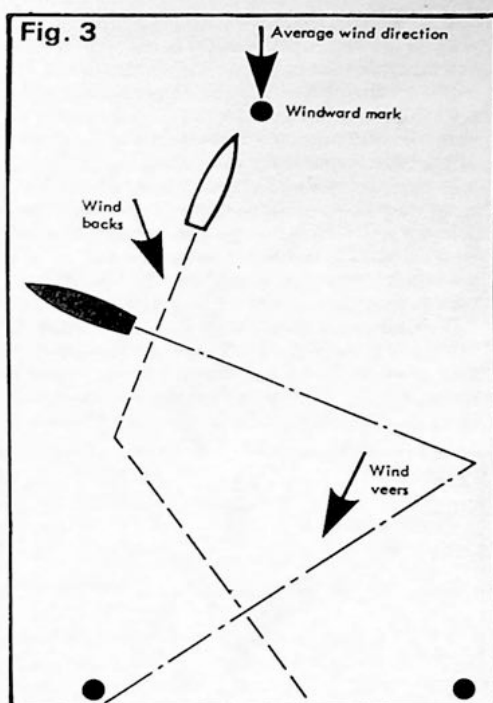
The Beat and The Weather Mark

For the best skippers, a good start can mean a certain win. For us lesser mortals, whilst a reasonable start is very necessary, we can squander it by bad sailing on the beat: you will spend more time beating than on any other point of sailing so it merits your best attention.

First then, what course should you sail? The answer is in two parts, which will sometimes conflict:

1. the shortest course
2. a course not radically different to everybody else's.

The key to the first part is windshifts. The wind is rarely constant in its direction for very long. As it shifts, first one tack then the other will give you the shortest course to the windward mark; see Fig. 3. Moreover, on the model yachtsman's scale of things, they can be extremely local. Now,



knowing where the windshifts are going to be is a black art, but reacting to them correctly when they happen is something all of us can do. Very simply, tack if you are headed, stay on the same tack if the wind frees. Watch the luff of your lee. If it starts to shake without you changing course you are being headed. Spot a freer by watching your burgee... you don't have a burgee? Take fifty lines and get one immediately. Ideally your boat should be set up so that it carries a bit of weather helm, so that you have to give a little dab of rudder every five or ten seconds to keep it off the wind; that way, the boat will follow a freer all on its own.

The idea behind steering a course not too different from the main fleet is that you don't want them to get a favourable windshift which you don't get. Taking a flier on a wildly different course will occasionally pay off but more often than not you will arrive at the windward mark at the back of the fleet.

The two determinants of the best course come into conflict when you are on one wing of the fleet and you get a freer which the rest of the fleet doesn't get. The best thing then is to follow it, so that you get some advantage, but not so far as to become totally separated from the rest of the fleet.

One last consideration about the course is that, all other things being equal, if you are not surrounded by other boats who are dictating your course, it's best to stay near the middle... there's nothing worse than getting a bad windshift when you are way over one side of the course; that's guaranteed to get you a last place.

All this talk of picking your course and tacking on heads should bring home the value of having room to manoeuvre: the very best place to be is at the front and miles ahead; the very worst is right in the middle of a tightly-packed bunch. Where you are is entirely a product of your start so if you are yourself unable to steer the course you want to, trace it back to the start and see what went wrong.

Which brings us onto the subject of

dealing with other boats. On the first beat the fleet is bound to be fairly closely spaced and other boats can substantially affect your performance by interfering with your wind... vice versa of course. Recognising this, if you are in close proximity to another boat or boats, what should you do? Let's divide the problem into four possibilities.

1. You are to leeward and ahead of another boat; see Fig. 4a. In this position you are doing maximum damage to your opponent by deflecting your wind onto the leeward side of his sails (tee-hee). So stay put.
2. You are to leeward and behind another boat; you are going to be getting some backwash from your opponent and sailing in his dirty wind, see Fig. 4b. Think about tacking if the water is clear, but beware of tacking into a worse situation. Alternatively, bear away a little bit and drive past him to leeward.
3. You are to windward and ahead: see Fig. 4c. A nice safe situation, so smirk inwardly and stay out.
4. You are to windward and behind; the inverse of position 1, and the worst for you (gnash wail). The longer it goes on, and the closer your opponent is, the worse it is. So tack as soon as you can, but look carefully first; imagine the situation after you have tacked and don't jump from the frying-pan into the fire.

Many times you are going to be so crowded by other boats that you will just have to grin and bear whatever situation you find yourself in... again, one of the objectives of a good start is room to manoeuvre. If you don't have it, look back to your start and see where things went wrong.

Fig. 4a

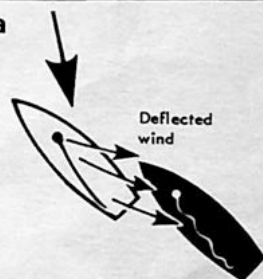


Fig. 4b

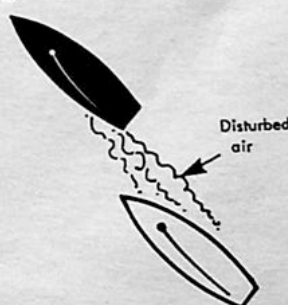
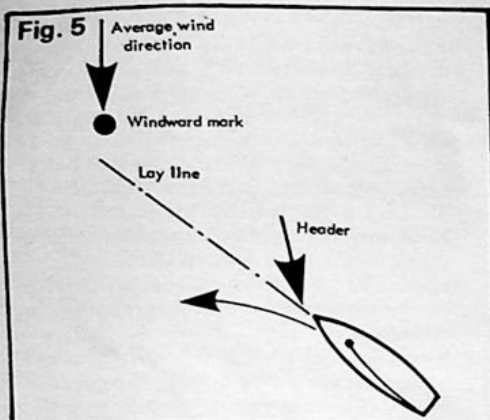


Fig. 4c





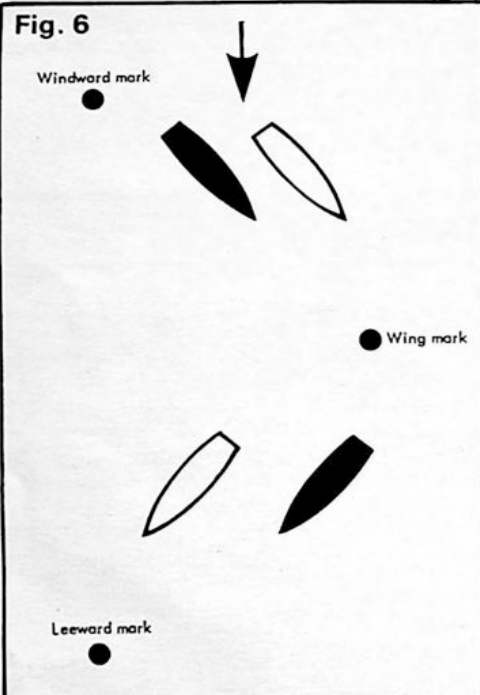
Tacking

The gentle art of tacking is a subject which merits a little discussion all to itself. If you have ever watched a skipper like Tony Owens tacking you will know what an effortless exercise it can be for the true expert. Some skippers do seem to have an instinct for it; if you are not one of them, a few pointers might help.

1. Tack resolutely, if-perish the thought-you are tacking on a freer or into a worse situation, don't make it worse still by dithering. Your boat will come to a grinding halt and everyone else will sail straight by... if you're not already in last place.
2. Only tack when you are travelling as fast as the conditions will allow; resolute tacking with zero boat-speed will get you nowhere.
3. Unless there is plenty of wind, don't try to assume a close-hauled course immediately on the new tack. You will do better to ease the sails a touch and bear away to pick up speed. You might think this will lose you distance to windward, often it doesn't; while you are travelling slowly on the new tack, your boat will tend to slither down to leeward. If you pick up speed quickly you will minimise the drift; the result is that you end up in the same position vis-a-vis the wind, but travelling faster.
4. Again, unless there is bags of wind, don't jam the rudder hard over; sail the boat round rather than wrenching it round. That way you will minimise your speed loss.
5. In light weather, watch the burgee like a hawk as you tack. Often you think that you have been badly headed because the burgee is pointing fore and aft, so you go to tack. As the boat goes about, the burgee remains on the centre-line instead of swinging over to the new leeward side, giving you, poor innocent, the idea that the ——— wind is freeing again just as you are changing course. What's really happening is that you have just sailed into a lull. The only wind you are getting is that created by the boat's own movement. Whichever way you point, the burgee will remain fore and aft. Go back onto your original course and wait for the wind.
6. Don't tack more often than absolutely necessary; you lose speed and distance every time you go about. Most particularly, try not to get into situations where you have to tack right next to the mark... in amongst everybody else who's making a mess of rounding.

When you are about half way up the windward leg, take a good hard look at how the situation at the mark is shaping up. If it looks as though everyone is going to arrive together in a heap, now is the time to take some avoiding action. Remember; stay out of trouble, especially at the marks. Until you are pretty skilled and know the rules backwards, sailing round the outside of a pile-up will always cost you less than trying to go through the middle, bellowing gadzooks, gangway varlets, and similar oaths. It's also easier on your heart.

You should aim to approach the mark on starboard tack (so that you can forget about any port-tackers) but don't try to lay it from miles off on starboard; a head will mean that you won't be able to lay it and leave



you having to tack at the worst possible moment; see Fig. 5. Ten yards or so is not too close before you tack onto starboard.

As you make your approach keep looking around you and try to imagine where other boats in your vicinity are going to end up, so you can be ready to avoid them if necessary.

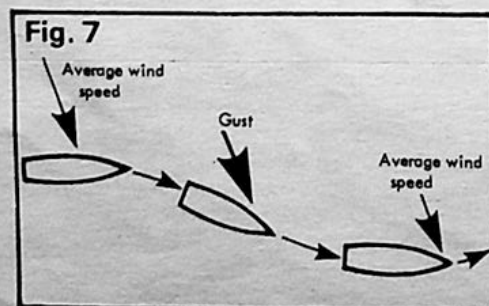
Finally, remember the overlap rule; if another boat is overlapping you on the inside as you get to four boat-lengths from the mark, you must give him room to round inside you. Of course, you get the room if you're on the inside.

Your checklist for the windward leg is going to look something like this:

Course
Shortest, don't lose the fleet, stay near the middle.

Tack

On a header when you're lee-bowed to maintain the right course only when



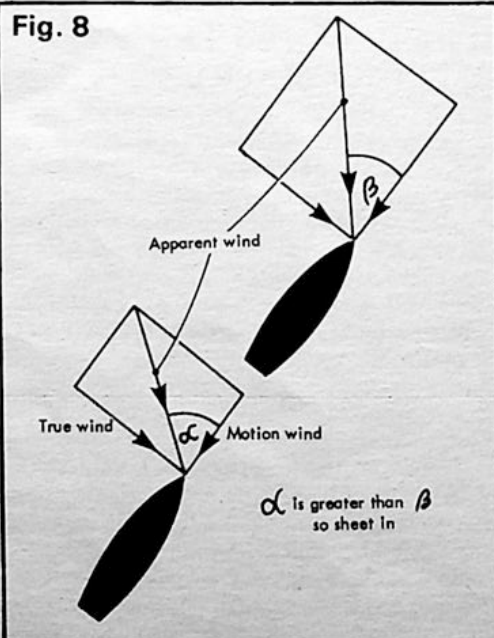
necessary, start sizing up the mark early, plan to sail round a pile-up, plan to approach on starboard, don't get to the lay-line too soon, look around you, stay out of trouble, think ahead.

Reaching and the Wing and Leeward Marks

On the reach your first priority is to choose the right course and you will need to do this even before you round the windward mark. The main determinants of the course are:

1. Is there going to be another pile-up at the wing mark. If the boats all round the windward mark in a gaggle you can be fairly sure they will crowd the next mark too. You must sail a reach which will let you go round their outside at the mark.
2. If the boats are rather more spread out, you can risk going for a closer rounding. In this case, sail a windward course which will keep your wind clear, see Fig. 6. On the second reach on a normal course this will put you on the inside at the leeward mark. If you get an overlap you will then have right of way around the mark. Don't try overtaking anyone too close to windward: they will have the right to luff you.
3. If there are no other boats around (what, at the back again?), sail directly between the marks.

In brisk conditions, playing the gusts correctly can buy you a lot of places when you are reaching. The basic rule is bear away in the gusts and luff in the lulls. Don't overdo it; ten or fifteen degrees change in course will suffice. The reason is that if you bear away you will stay with the gust longer — see Fig. 7 — then luff up so that you are back on course ready for the next one. Another important thing is to sheet in a bit as the boat accelerates and sheet out as it slows down. Again, don't overdo it; a couple of notches on your transmitter stick is plenty. And don't sheet out too soon or your boat will drop off its howling plane as if it had hit a brick wall. The reason for playing fiddler's elbow with the sheets is the apparent wind; this is the combination of the true wind and the wind created by the boat's own forward motion, see Fig. 8. As the boat accelerates the motion wind increases and the apparent wind moves forwards... so you trim the sheets in. The



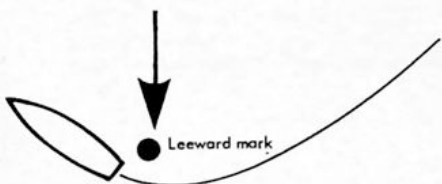
reverse happens when you slow down.

One perennial question when reaching or running is 'To luff or not to luff?' You have the right to luff a boat which is either clear astern or overtaking you to windward (hence, of course, blanketing you as he goes past) until his mast is level with your stem. But should you exercise your right? What you gain is stopping him overtaking. What you may lose is all the other boats in the immediate vicinity tearing past to leeward. The only time it's worth standing on your rights is when there are either no boats astern (only last but one this time, ho-ho) or there is a long gap behind. If you luff, do it decisively. Try to hit the other boat... it's the only time you're allowed to. As soon as the other boat calls mast to stem, turn back to your course for the mark.

At the leeward mark, if you are going round the outside of a pile up, remember to trim your sheets so as to keep your sails full as you go round. Make sure you give room to the boats nearer to the mark, but don't be too generous; you don't have to give the blighters half the lake to manoeuvre in.

If you are unconstrained by other boats, the actual path you take round the mark can buy you valuable distance to windward at the start of the next beat, see Fig. 9. The

Fig. 9



idea is to start wide of the mark but come up hard against it as you exit. If you start too close your boat will slide down to leeward as you go round, perhaps giving the boat behind room to get to windward of you at the start of the beat. If you ARE the best behind, it's doubly important to round well. However, don't lose sight of the overall need to stay out of trouble; in this case that means, Don't hit the mark!

Your checklist for the reaches should be something like this:

Course

Round the outside to avoid pile-ups to windward to keep clear wind down the middle otherwise.

Boat handling

Bear away on the puffs, luff up in the lulls, sheet in as you accelerate, sheet out as you slow down.

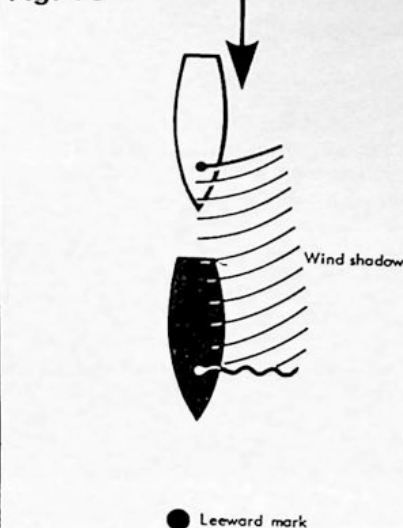
Marks

Inside overlap gets room round the outside of a pile-up, start wide finish close at the leeward mark, look ahead, concentrate.

The Run

The run is the one leg of the course where even the novice can sometimes be a bit aggressive and get away with it. The reason is that, firstly, by the run the fleet is generally well spread out so you can afford to think about boat-to-boat tactics. Secondly, next to beating, running is the slowest point of sailing so you get plenty of time to contemplate your actions, and minor indiscretions with the angle of the

Fig. 10



sails won't bring you to a dead halt. Do remember, however, that when running, you can't slow down by easing your sails. Altering course will speed you up as you come onto the wind, which might be preferable to an intimate inspection of another boat's hull, from the inside...

First, let's consider the course. If there are no other boats around, the best course is a straight line between the marks. (Model yachts don't really speed up until they are on a quartering reach so tacking downwind will probably lose more than it will gain). If, on the other hand, there is an opponent nearby and in front, you can vent all your latent aggression on him by taking his wind. The idea is to position yourself so that your burgee (you have got one now, haven't you) is pointing straight at his stern. That way you cast your windshadow right across his sails and take all the drive out of them... good fun, eh! See Fig. 10. He will try to manoeuvre out of your windshadow and you must counter his moves to keep him in it. If this goes on long enough you will catch him up. Here, even at low speeds, life can get exciting. The closer you get the more the difference in your speeds will be and hence the more likely you are to ram him from behind. This is not recommended practice, unless you are fond of penalty turns. The thing to do is to keep him pinned in your shadow 'til the last moment then bear away and pass him to leeward (so that he will not be able to luff you).

If you are in front, you will just have to squirm as best you can and hope the chap behind is myopic.

All this changes of course if -didn't you know it- there are lots of other boats around. In this case you are much better off to steer a direct course and keep a sharp eye open to windward... give a sharp luff to any boat trying to sneak by, but don't press the point while all the rest sail past to leeward.

It's often easy to forget that port and starboard still applies on a run; be sure of which tack your boat is on (sail out to port means you're on starboard tack and vice-versa) and shout loud and early if a port tacker gets in your way.

Rounding the leeward mark well is very important because it can buy you distance to windward on the following beat; see the earlier section on the reach for details.

Remember that if you get an inside overlap, you have right of way. Curiously, this is sometimes a liability because the boat outside can round closer to the mark at the exit - see Fig. 11 - thus buying that vital distance to windward and preventing the boat in front from tacking. The important thing is to think ahead; imagine what the situation is going to be after you have rounded and be prepared to force your rights at the mark so that you have the advantage on the beat. Of course, if you can see a pile-up developing in front of you, manoeuvre to sail round the outside.

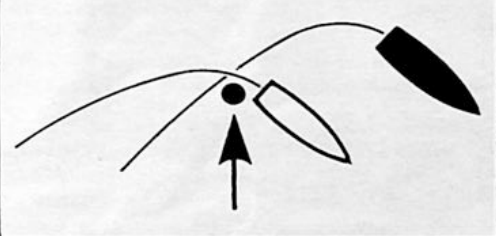
The check-list for the run will be:

Course

Sailing alone; straight line, blanket boats ahead, avoid blanket of boats astern.

Pass to leeward, luff boats overtaking to windward, think ahead to the mark, plan a good rounding, look around you, concentrate.

Fig. 11



The Beat and The Finish

The ideas here apply equally to the first half of the sausage and to the final beat to the finish line.

On the first beat the emphasis was very much on sailing fast and keeping out of trouble. If the fleet is still bunched up, those should still be your priorities. If, as is more likely, it is strung out, you need to concentrate much more on covering boats astern and attacking boats ahead.

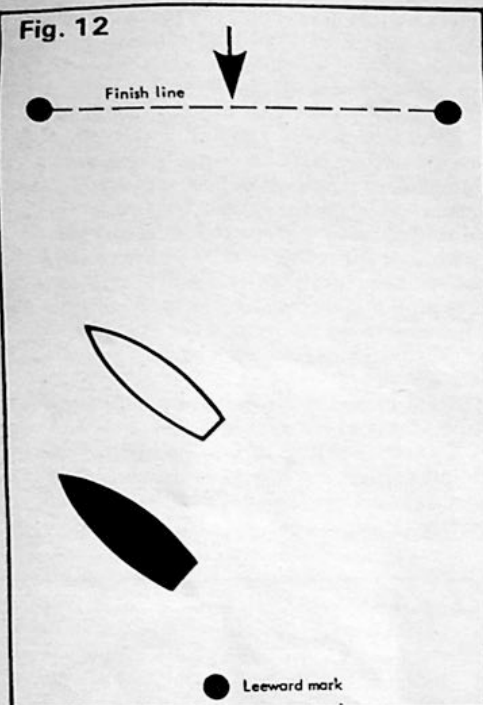
Covering another boat simply means staying between it and the finish line or the next mark, thus protecting any advantage you have. To cover successfully you must always be on the same tack and to windward, see Fig. 12, even if your opponent is miles astern; it's amazing how quickly a windshift can change the relative positions of two boats on opposite tacks.

There are two critical things to think about when covering:

1. tack when your opponent tacks, but a fraction after him so that you don't fail for a false tack.
2. be absolutely clear about when and where you are going to tack onto the lay-line for the mark or finishing mark. Your opponent will try to sail you past the lay-line so as to give himself some chance of overtaking you, see Fig. 13. Tacking onto the lay line is the only time you should allow yourself to go about without your opponent having done so first. If you are being covered, you must try to break free. There are two ways of doing this:

1. throw several tacks in quick succession. You of course have the upper hand here and can make each tack smooth and precise while your opponent bangs the rudder left then right in an effort to stay with you. Refer back to the section on the first beat for some guidelines.

Fig. 12



2. throw a false tack, by coming up into the wind and then quickly bearing away so as to minimise your loss of speed. A sharp opponent won't fall for this so don't try it against last year's national champion. (You got this close to last year's national champion? You must be improving). Do make sure that you are going as fast as possible before you try it, even to the extent of bearing away a bit before hand.

Make sure you know when and where you will want to tack for the mark... if your opponent sails past it, rejoice, he probably hasn't read this article.

Whether you are covering or covered, it's absolutely vital to keep an eye open for other boats. Having five upstarts charge past while you are engaged in a life-or-death tacking duel is enough to make a grown man eat his transmitter aerial. (How do I know this? How do you think...)

If you are beating to the finish, look to see if one end of the line is closer than the other and head for it. Start and finish lines are generally angled a bit; at the start any advantage you might get from starting at the favoured end will be outweighed by having to fight your way through eight other boats to get there. At the finish you are likely to have much more room to manoeuvre, so if there is a favoured end, go for it.

Picking the right approach for rounding the mark or finishing is exactly the same as on the first beat; approach on starboard, having tacked ten yards or so from the mark. Of course if you are covering closely to the finish, all that matters is getting across the line in front of the other boat; any course which gets you there will do.

Your checklist for the final beats will look like this:

Course

Fast and out of trouble if surrounded by opponents, otherwise cover.

Covering

Same tack; to windward, tack just after the other boat's real move.

Covered

Throw quick tacks, throw a false tack, watch for the lay-lines.

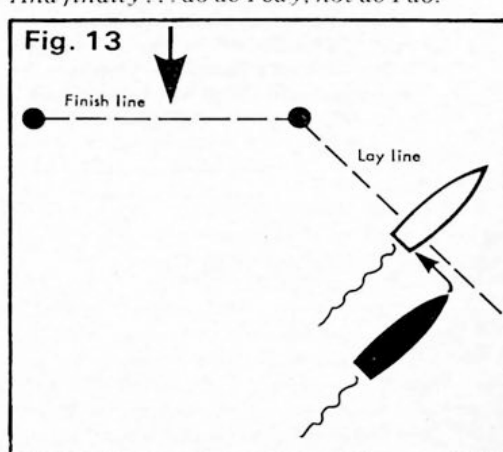
Plan your approach to the line or the mark think ahead, look out for other boats, concentrate.

After the Finish

1. Get out of the way so that you don't obstruct other finishers.
2. Go over the race in your mind and ferret out the mistakes you made and the areas for improvement. This is particularly important because it will help you to learn much more quickly.
3. Give yourself a mental pat on the back, wherever you finished. After all, you have just completed a race demanding skills that the average mortal hasn't even dreamed of.
4. Don't be too harsh on yourself if you came last. Every race is practice for the day you beat this year's national champion.

And finally... do as I say, not as I do.

Fig. 13



G.K. MODELS

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413	FITTINGS above	£15.16	475	FITTINGS above	£15.16	496	SEASTAR	£27.16
437	NORSKE LOVE	£38.36	476	NORDKAP	£25.56	497	FITTINGS above	£14.36
438	FITTINGS above	£35.96	477	FITTINGS above	£24.76	510	BANCKERT	£17.56
448	DRAGEN	£17.56	478	SMIT/ROTTERDAM	£35.16	511	FITTINGS above	£19.16
449	FITTINGS above	£11.16	479	FITTINGS above	£34.36	514	NIELS JUEL	£15.16
452	BLUENOSE	£18.36	480	GOLDEN HIND	£33.56		FITTINGS above	£8.76
453	FITTINGS above	£16.76	481	FITTINGS above	£19.56	516	BANCKERT/ABS	£35.96
456	VIKING SHIP	£14.36	482	TOULONNAISE	£24.76	518	OSEBERG	£23.16
463	SPANISH GALLEON	£23.16	483	FITTINGS above	£19.16	528	SMIT NEDERLAND	£51.96
464	FITTINGS above	£15.15	486	ZWARTE ZEE	£17.56	529	FITTINGS above	£43.96
465	JYLLAND	£26.36	487	FITTINGS above	£16.76	530	HOOGAARS	£14.36
466	FITTINGS above	£31.96	490	WASA	£38.36	532	ZEESCHOUW	£14.36
468	MARIE JEANNE	£15.96	488	SANTA MARIA	£23.16	534	BOULOGNE	
469	FITTINGS above	£8.76	489	FITTINGS above	£14.36		ETAPLES	£20.76
470	SEA ADLER	£26.36	490	WASA	£38.36	535	FITTINGS above	£17.56
471	FITTINGS above	£31.96	491	FITTINGS above	£42.36	546	GLADEN	£30.36
472	MARY ANN	£17.56	492	BOUNTY	£25.56	547	FITTINGS above	£31.96
473	FITTINGS above	£14.36	493	FITTINGS above	£19.96	548	ANNA DORDRECHT	£15.16
			494	MOTORLOGGER	£15.96	550	DANMARK	£27.16
						551	FITTINGS above	£34.36
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						564	CUTTY SARK	£27.96
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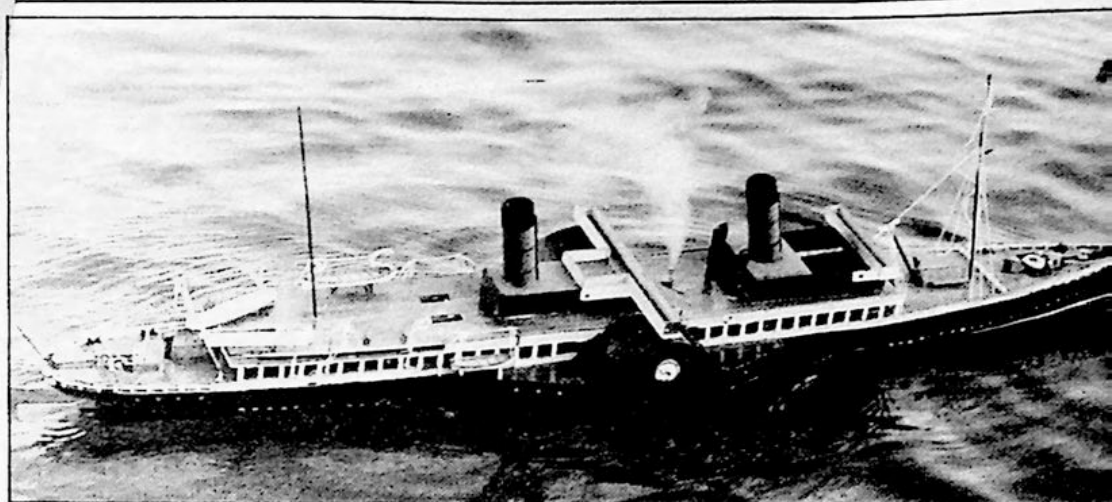
WE TRY TO DESPATCH ALL MAIL ORDERS THE SAME DAY. SHOULD DEMAND ON ANY ONE ITEM EXCEED STOCK LEVEL & YOU DO NOT WISH TO WAIT FOR YOUR ORDER, PLEASE ENCLOSE A S.A.E. & YOUR CHEQUE/ORDER WILL BE PROMPTLY RETURNED. ORDERS OVER £15.00 ARE P/P FREE, EXCEPT WHERE OTHERWISE STATED. UNDER £15.00 PLEASE ADD 50p TO THE ORDER VALUE. ANY ENQUIRIES PLEASE ENCLOSE A S.A.E. REPLIES CANNOT BE DEALT WITH OTHERWISE. OVERSEAS ORDERS PLEASE ENCLOSE 2 IRC FOR QUOTE. ORDERS SENT ABROAD WILL BE VAT FREE — P&P AT COST. OVER THE COUNTER SCHEME ALSO ARRANGED.

Marine Miscellany

Manx Model Boats by Basil Harley

It is no surprise to find a lot of shipping activity on the seas surrounding the Isle of Man. Vessels range from dinghies and inflatables to the holiday cruise ships which occasionally anchor in Douglas Bay and discharge their countless passengers to the joy of the local traders. The day-to-day business of the island depends on the boats (as you must learn to call the ferries) that link Douglas with Heysham, Belfast, Dublin and Ardrossan, though no longer Liverpool.

I recently made my first visit to the island in company with other members of the Newcomen Society for the summer meeting. As befits a society for the study of technology we rode on the horse trams, the electric trains and the steam trains



An interesting model of an early ferry Empress Queen with Wilescos engine and boiler driving the paddles. Built by Phil Walker.

present including a menacing submarine by committee member Stan Watterson and a lively hovercraft. Most members are interested in scale or stand-off scale models and there is a great emphasis on mutual enjoyment. I have a feeling, too, that as a result of a chat in the Majestic bar afterwards there will be a few more steamboats in the coming months.

The island's dependence on the ferries has naturally inspired model makers over

ago and his latest, completed last year, is a fine twin screw (with twin independently controlled motors) model of the last of the former Steam Packet Co's traditional boats, the T.S.S. *Manxman*. Everything was made in Don's workshop and the detail and performance of both are superb. Whether the latest *Mona's Isle*, the controversial boat brought into service this year, will also figure in Don's fleet remains to be seen.

Members come from all over the island and there is a lively junior section. Many build from kits which has added point where it is not always easy to get supplies of fittings and components as it is on the mainland. A very nice example of a kit-built boat was committee member Alan Postlethwaite's fishing boat *Eileen*, and there was even a Billings tug with a home-made electric motor!

But it is the models made from scratch, often from MAP plans, and which involve their builders in some research and experiment which are the most rewarding. One such was a lovely *Mauretania* (c1907) over 5ft. long by Barry Kerfoot with

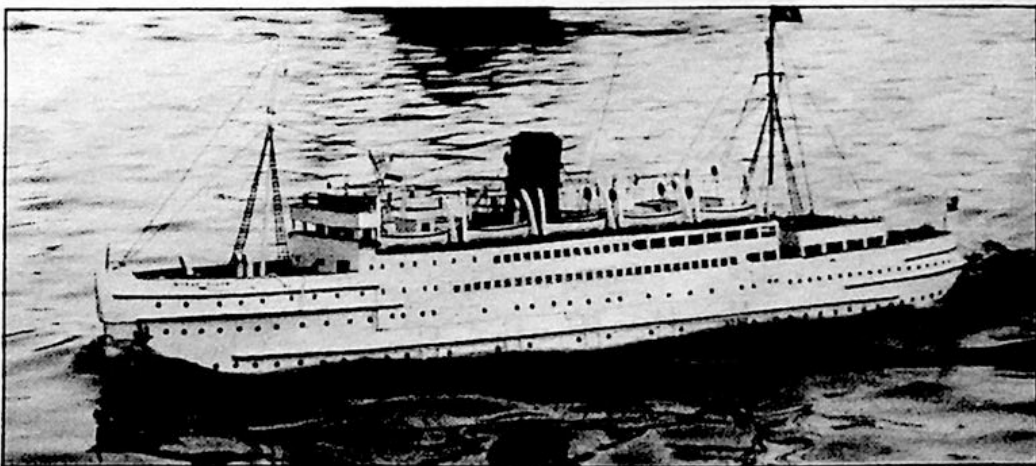


Left: the fishing boat *Eileen*, a nicely-finished kit-built model by Alan Postlethwaite. Below: Don McKay's delightful scratchbuilt Isle of Man ferry *Mona's Queen*.

with their rolling stock miraculously preserved from Edwardian days. Happily the *Waverley*, the last of the steam powered sea-going paddle steamers visited the island during the meeting but we had time only for tea on board and a hurried inspection of her engines.

However, staying on for a few days I had the opportunity of seeing another paddler, properly driven by live steam, built by Phil Walker, a member of the very recently formed Manx Model Boat Club. This was *Mona's Empress*, a very nicely built 'first attempt' ferry powered by a Wilescos twin cylinder gas-fired engine and boiler and, of course, radio controlled.

The occasion was one of the Club's regular Thursday evening meetings on a pool in Onchan Park (the swimming pool at the Majestic Hotel, the usual venue, having been drained for painting that very afternoon). On a bright but bitter May evening I was delighted to have the opportunity of seeing a wide range of members' work. Some 25 boats were



the years and there are some fine examples to be seen in local museums. I will describe some of these in a later article, but it is Don McKay of Douglas who is the current champion of these boats. His M.V. *Mona's Queen*, about a metre long, was built some eight years

quadruple screws each with its own motor and a superb though still unfinished harbour protection launch by Robert Bagshaw. These were some of the boats that appealed to me and, it seemed, to many of the 50 or so people who had gathered at the chilly pool-side.

The General Secretary Greg Metcalf, reports

I had a somewhat interesting day May Day — sorting out the trophies and typing up the minutes of the January A.G.M.

Two things came to light — well three, if you call the fact that we were broke — typing the minutes up. Firstly, we have a member of the MPBA who was there, 61 years ago, at the beginning. I did not know that fact, but our Chairman did. That person is none other than Olive Cockman. I think its marvellous, absolutely marvellous, that we still have a member who's been with us for all that time. Our congratulations and best wishes go out to Olive, and we hope that she keeps going for many years to come.

The second fact is that Dennis Vokins has been Midland Area Treasurer for 22 years. That is what is known as service.

In previous articles I have been banging the drum over a number of problems, such as attendance at conferences, attendance at NEC meetings, putting the fees up, nitro, etc. However, back to finances this time. I had a letter last week from our National Treasurer Fred Goff, and our finances are still pretty grim. Membership is still down on last year, and despite the increase in fees, our income is down on this time last year. Our next NEC meeting is end of June, and we shall be discussing the accounts again and trying to see where we can save money. It is difficult to



David Abbott's superb model of the Whitby dredger Esk, which is still in service, received equal highest static marks at the recent NAVIGA World Championships Team selection meeting, and will be one of the models representing GB at Rotterdam in August.

tangible for their money, because I feel that that is what it needs to keep what members we have. Perhaps in time we can afford to give every member a year book. The other point is that Fred Goff has intimated that once, perhaps twice a year we send out to the membership a current copy of the state of the MPBA's accounts. Its a good idea, and would keep the membership up to date as to what the money is going on.

I found an interesting letter in *Model Boats* last month from a model boater in Norwich, giving his ideas about scale judging. Its good to find that there are people who are giving the matter some considerable thought. My only criticism is that 400 points is too much. Keep the points score low, then you will not get any irregularity in the scoring by awarding too many, or not enough points, for any one thing. I think that the present MPBA points system, and this came to light at the Judges Symposium in February when we judged the boats for Rotterdam, needs to be slightly altered so that half points count. There were two or three excellent boats at that symposium, and a half point would have helped us.

There is also the question of whether a kit is a scale boat. I think that those who build the kits for the market have to say that because of the research and time put in, the prototype has to be true scale. After seeing the boats being built in my brother's workshop, then they are certainly to scale. Of course, once they are being mass produced for the market, then they become a kit — a scale kit though.

Tomorrow night sees the first Hertford club regatta for club members. We have a slight problem, the buoys are in Dave Abbot's garage in Luton, and Dave is at Primrose Valley Model Week in Filey!

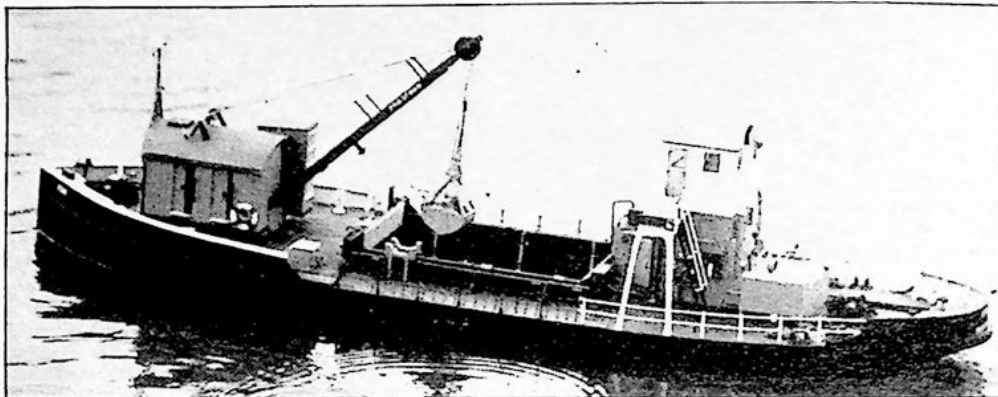
say just what the money is going on, I mean no one thing stands out as being excessive.

I find this struggle for money very depressing, as there are so many things we could do if we had the money. I think the regatta list is one of the best ideas of showing the membership what we can do. Its handy, clean, informative and looks nice. I feel that if something looks nice, then it looks professional. The MPBA bought a brand new Gestetner, but at times copies come out quite grubby. Alright, the machine desperately needs a service, but that costs money. This year I had the Rule Changes printed at a local print bar. They look good, and the whole lot came to about £50. I had to sit down with David and collate the lot, staple them etc., but it saves money.

The biggest disappointment is not being able to give the members something

Propwash

Model Power Boat Association News



David Abbott's superb model of the Whitby dredger Esk, which is still in service, received equal highest static marks at the recent NAVIGA World Championships Team selection meeting, and will be one of the models representing GB at Rotterdam in August.



The Esk will be the subject of a future article describing her research and construction. Photos: David Metcalf.

Straight Running News from Don Hewett

The June edition of *Model Boats* appeared to contain more than its usual share of financial matters. Apart from the reports on the N.E.C's deliberations, in regard the M.P.B.A's money, *Mailboat* had a letter from G. Tarrent of Peterborough who estimated the cost of a club level multi-racer at around £200.00 and called for a beginners class, whilst Dave Metcalf's *Scale News* suggested that a beginner could put a kit model on the water for around £100.00. Both these figures gave me a severe pain in the region of the wallet, both appear to be a high price to pay for a first excursion into a field which may not prove to your liking, and then what do you do with the equipment. S/R is the least costly of all forms of model boating (I believe I have mentioned that before) where for well under £50.00, including the cost of a pair of waders, anyone can join in and try it out. As for beginners, where do they come from? I know that many active boaters introduce their sons and daughters to the

sport, and give greatly of their own know-how and spare gear to ensure the youngster gets off on the right foot, but what about John Willie? who having seen the sport from the ponside, would like to have a go. How does a boy or girl of school age, with no family boating back-up get started? Are we in our clubs doing what we should to bring them in? Juniors may be a bit of a nuisance to start with, but they do eventually become Seniors, and in due course of time, maybe, members of the N.E.C. To help guide the Association, and write for *Propwash* I am sure we have great need of beginners in S/R but how do we capture them? Perhaps if T.V. programmes featured Model Boating, along with Darts and Snooker . . . just wishful thinking!

On the competitive side of S/R I have received reports of the first two Open Regattas of the season in the Southern Area. I say reports, as having spent most of the winter overhauling my boats, and looking forward to running them, circumstances ganged upon me and firmly stopped any idea of going to Harlow on 28 April or Welwyn on 5 May. The reports were of very similar content, both regattas were run on cold windy days, both had an entry in the mid 20's, and at both 'The Willett's' carried off the first three places in Wedge, the difference being that at Harlow the order was Dad (Tony), David, John, whilst at Welwyn, David, John, Dad. Harlow sported a new trophy, for knockout, and named (I believe) The Spring Trophy, which was quickly snapped up by John Allen of — would you believe it? — Harlow.

My informants both mentioned a reluctance on the part of the majority to do their share of stopping at either regatta, leaving it to the usual hardy few, with Alf House of Victoria receiving special mention as one who did much more than his fair share, as usual!

Mayesbrook's Regatta on 12 May was held in similar conditions of cold and wind, but with the addition of an hour or so of rain. A further problem to be overcome by the 30 or so competitors was the large amount of long green slimy weed that floated a couple of inches below the surface, and lovingly wrapped itself around the prop of nearly every boat that attempted the course. In spite of all the difficulties the programme was completed, with again the Willett surname in the winners places at the end of the Wedge event, but this time only in 2nd (Dad) and 3rd (David) places. 1st place went to Jeanette Johnson, another Welwyn junior in her first year of boating, with 28 scored from the possible 30. In case you are wondering, I can confirm, that there are others, from other clubs, who run Wedge's in the South.

The President writes: Frank Bradbury

The last time I wrote I asked if members would write to me on the reasons why they themselves were not attending regattas, particularly multi. I had emphasised that I require their reasons and not what they think why others are not. I received a miserable number of replies, namely 5, of which 3 were the type I did specifically ask not to be sent. I was personally interested in multi as this is my scene, and it was painfully obvious that attendances were down in the North. Come on members let me have more reactions.

The following is a general report on the first four regattas in multi in the North for the present season, which I attended and sailed in.

Bolton 31 March — Here there was a reasonable turnout considering the early date and the hot very good weather that was forecast. One or two people had been to the lake a week previous and reported no water. The Bolton club, particularly Dave Marles, assured all that there would be water and the event was still on. As it turned out the water was down a little but still giving enough depth for the models, but the rescue boats were in continuous trouble with fouling of the outboard props, and constantly having to replace the shear pins. The weather turned out to be as bad as had been forecast, cold with a strong wind blowing straight into our faces, although the rain held off thankfully. A good day's racing was had by all, and it was easy to spot the lack of practice by some, due to the winter layoff.

Manchester (1hr. Northern Enduro Champs) 21 April — This was held on the club's new water, Debdale Park. This lake is ideally suited for multi, it is large, sheltered (waterwise) and accessible with the cars right to the edge. It has very pleasant surroundings which were not appreciated fully due to the weather. Here again the rain held off but the wind — it must be following me everywhere I go. There have not been any suggestions that I know of, for me to stay away so that the better weather will prevail! For an area championship it was poorly attended with 35 boat entries, with some having two boats and a few having three boats. The attendance in bodies was really well down.

The racing was good but the thrilling edge and the adrenalin flow was missing with such few boats in each race; the lake being large the lap count callers were tending to sleep, between boats. Driving is improving, this is shown by the shortage

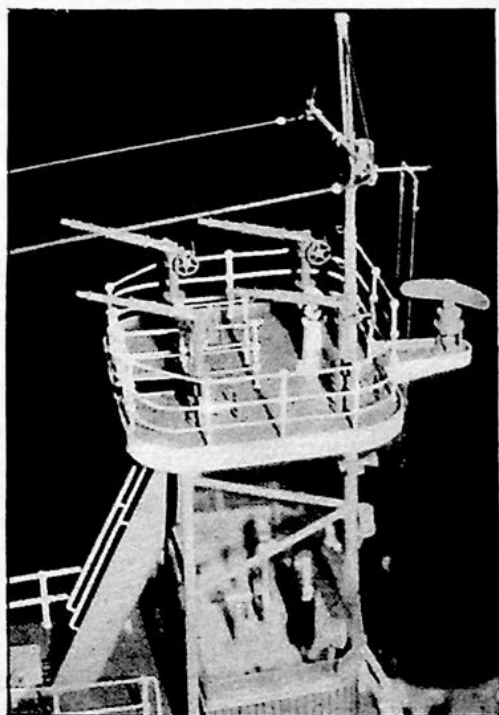
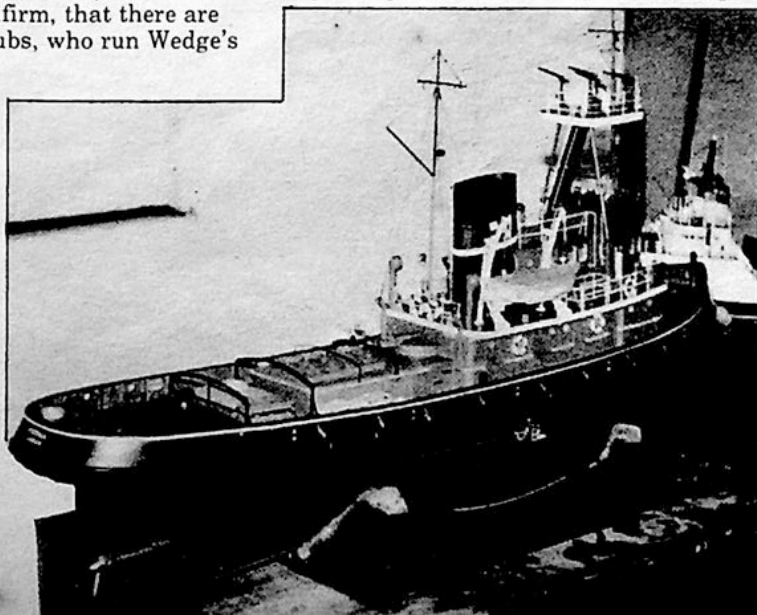
of near misses and hits on the rescue dinghy. The two near misses were really caused by the high wind while the boat was throttled down and were blown towards the dinghy. The hit was by a complete novice who is junior as well as a girl — no comments about lady drivers — and here again understandable as the boat was throttled right down and sight was lost of it behind the dinghy. The final of the Enduro, for which I don't yet know of the venue, will be on 23 June. I heard a whisper yesterday that the past president of the IMPBA USA will be over here on that date and would like to attend.

Keithley 28 April — The 'Classic' 1hr.

— The club had the same trouble as Bolton — lack of water, which we understand is due to an act of vandalism by the adjacent farmer, who has a compulsive hatred of model boats using the Tarn. John Barraclough tells me that the Council, who's water it is are now taking more interest actively, and have given John some legal and material help in keeping the water next time. The weather that day did not do as the weather forecasters said it should. The day opened to glorious weather, no clouds, sun shining and very little wind. After we had crossed the Pennines a few clouds started to form and by the time we reached the Tarn at over 1600ft. above sea level it became overcast and the wind got up. It had heard that I was coming! The racing was very good, but again suffered from lack of entrants. Towards mid afternoon we had flurries of snow and of course the wind and snow was straight into our faces. The cold weather and the height above sea level was the cause that made the adjustments of needle settings quite radical. There was some very welcome refreshments arranged and served by John's mother Mrs.

Barraclough; the hot soup was a very welcome dish. The racing consisted of heats and finals with unfortunately the lap counter unit going 'kaput' at the last minute of the last race. The weather being what it was drove a few home early if their heat results were not enough to get them through to the finals. I am sorry to

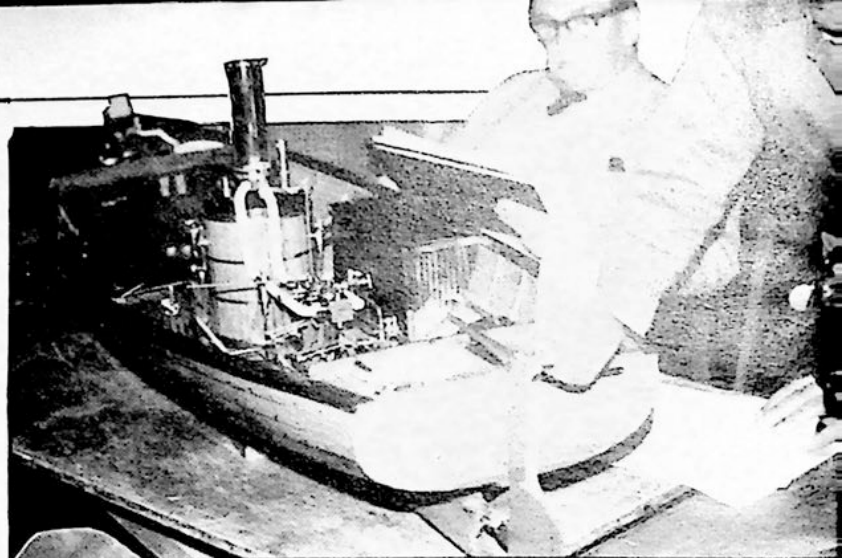
Alan Locks' motor tug Hibernia will be another of our NAVIGA representatives, this in class F2B. Right: close up of the monitor platform. Photos: David Metcalf.



say I was one of them, principally because my hip joints were beginning to rust up, and I had no WD40 injections with me. From all reports everyone enjoyed themselves in spite of the weather.

Manchester Open — 5 May. This is getting monotonous — it started fine but developed into a fairly windy day, but with one difference to the others above — it rained just to cap it all. Again the attendance was abysmally low with the stalwarts again arriving — Robert Daniel and Mike Futter from Scarborough which is a fair distance, Brian Warburton and family from Liverpool, newcomer D. Pickard from Keithley, and Geoff Benson, how very nice to see him back on the scene, particularly as he 'mechanised' for myself in the A class race. The remainder of the entrants were comparatively local.

Right: Peter Arnot's Steam Launch Henry received a good static mark, 70 per cent, and was a past winner at the Windermere Steamboat Museum's regatta.



T. Olliffe's HMS Avenger being examined by Mark Leslie. Photos: David Metcalf.



The original intention was to have heats and finals, but with so little a turnout, suggestions were asked for; one being for one hour races, another was for two half-hour races with the best to count. The latter, being most popular, won the day. While the quantity was low the quality was quite high. On a large course and with 80-90 laps being scored the quality was obvious. There were some remarks after the event by the club members about the poor attendance. They felt that having gone to more than the usual amount of work in developing the venue, also that our members do support other club regattas, our smallest contingent is seven, but mostly we have 10 or 11, the hospitality is not returned. There was some mutterings about not putting on any next year, but if I know our members they will forget and forgive when next year comes up for discussion.

Scale Scene from David Metcalf

I must apologise to the Editor (he who must be obeyed?) for not having written one of these columns for some while, however there is much to cover so let's not waste too much space on idle chatter.

Firstly I must just say to Mr. Wines, of Lynwood, Western Australia, that I have noted his comment about the deadeyes on the *Celia Jane* Thames Barge that I built. He could well be right, however I did say that I was not an expert on this type of vessel, I will however check and amend the model accordingly, if required! I'll also say that now the good (?) weather is here I will be sailing her a bit more. There are several modifications I wish to carry out,

and for those of you who have, or are, building one I will keep you informed as to how these go. I bet Mr. Wines has better sailing weather than we do over here.

The photo that was enclosed with the letter of Mr. Wines 'exploded' Lowestoft Trawler was a bit of an eye-opener. It shows us how we must all be more than careful with our models; a quick boiler check would have warned Mr. Wines. I suppose that when you have been running a model for twenty years one can get a bit familiar with it, the shame is that the one time that it was not checked, it bit back. I would however assume from Mr. Wines that he has it rebuilt and running again by now. It does though go to show how careful we must be with our models. It takes me back to when we did the

Seaforth Clansman as a free plan; Ray Brigden put his on fast charge and the next thing he knew was that the nicads had blown up and destroyed the model! So let's all remember, Safety First!

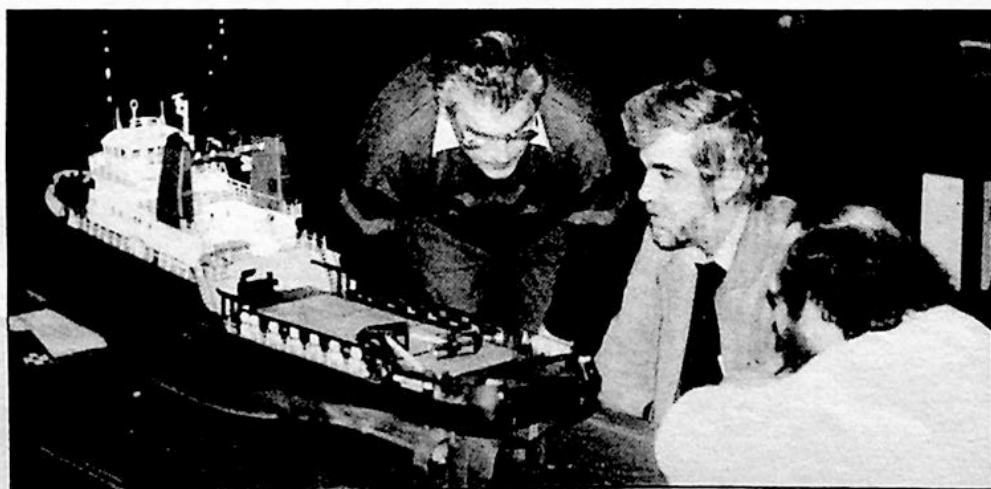
I found Mr. Gordon of Norwich's letter, about scale judging interesting, I will however say that I now feel that at least in the MPBA we have got the scale judging rules virtually correct. I will not say that they are 100% right as I feel that there is always room for improvement.

However, Mr. Gordon I do feel that you are being a little bit cheeky in your first couple of paragraphs. I have attended more regatta's in the last few years than I care to remember, and it does not matter how you judge the models, 95% of the time the best model's always win, perhaps what you are saying is that your personal views differ from the majority of judges' views. We must surely follow in our judging what the majority want.

As for the comments about power-driven ship models lagging so far behind almost every other field, well, I know Norfolk is a bit remote, but it's not that remote. We have surely seen the largest steps forward in the last 10 years than we have ever seen before.

We, in model boating, do try to keep it a

Frank Hinchliffe of Calder Craft, Roger Thayne and David Wilson discussing a Smit Lloyd tug entry at the selection meeting.



bit friendly, however the last couple of paragraphs aren't exactly friendly. I mean let's go out and enjoy ourselves and other peoples' modelling, let's not get paranoid about it, penalising electric powered models of motor ships for instance. How many people do you know who can make a small scale diesel engine that works, or a small scale steam turbine? Not many I bet. Let's try to encourage people to take up our hobby and not do every thing in our power to drive them off!

As for the comments about building models from full-size materials, well to the proposed rules, a true scale model built from the wrong materials will not achieve any points, whereas a roughly built steel model with a diesel engine will be judged higher. That will surely improve the temperament of those who wish to build scale models!

One last few comments about letters, I found the one on *Parsons & Turbinia* from Mr. Whitmarsh of Dorset very interesting, thank you Mr. Whitmarsh, a jolly good and informative read. If the editor published a few more letters like this one who would want to read the rest of the magazine. I will though say that I did not think of the Denny steam gunboats as small craft, however they are really.

I had a good letter from a Mr. Ruffles of London, SE9. He asked how he could

had a very good turn-out of models for the judging exercise, there being in the region of 40 models present, over half of which were entered for Naviga judging. We had selected a team for judging these models that consisted of Colin Bishop as Chief Judge, the others being Ken Daniels, George Foster, Mick Finnis and Greg Metcalf. These five immediately took themselves off to one side and spent all day judging the 'Naviga' models.

We started the meeting with the morning spent on discussing the MPBA, rules and regulations, also just really discussing the state of scale modelling in particular. One of the strengths of a meeting like this is that we can give time to whoever has something of interest to say, time which we do not always have at the scale A.G.M. and several propositions were worked out for voting on at the A.G.M.

The bar was opened at midday, so we were able to take a good lunch break, again it was very interesting to see all the members from the different areas getting together and chatting. Again while we enjoyed ourselves the Naviga judges did not stop for lunch.

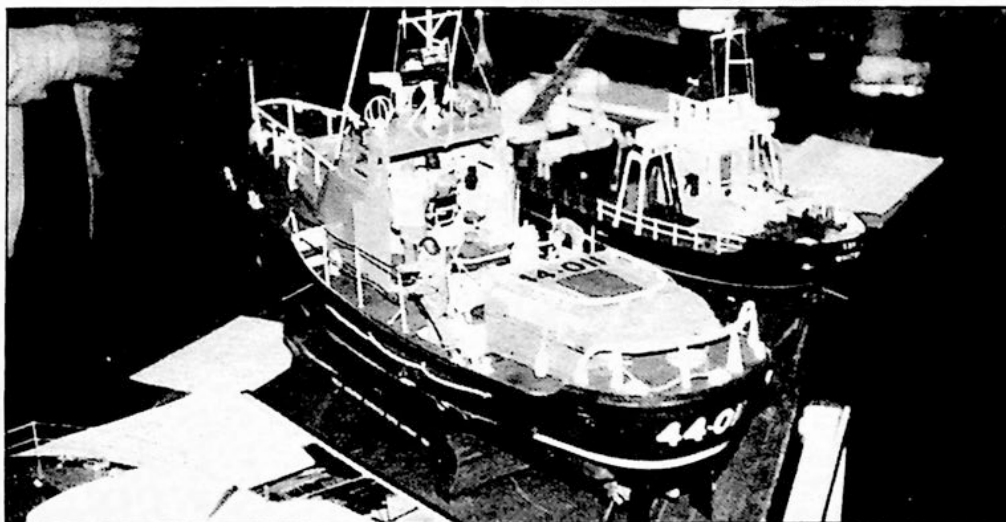
The afternoon session was spent in a practical judging exercise of all the models present; this we achieved by splitting the models into three sections, we then split the meeting into three groups, and each group, judged some of

the models. This was so that everyone had a general idea of what to do, and this exercise we carried on for one hour. We then moved each judging group around to the next model group, and then individually judged that section of models; two and a half hours was allowed for this.

We spent the rest of the day (what was left of it) with a discussion on the days activities.

By then the Naviga judging team had finished their work. Here a few words to thank them most sincerely. They spent all day without a break, and they did a very good job, and I was able to say to those present what marks their models had achieved and thank the judges.

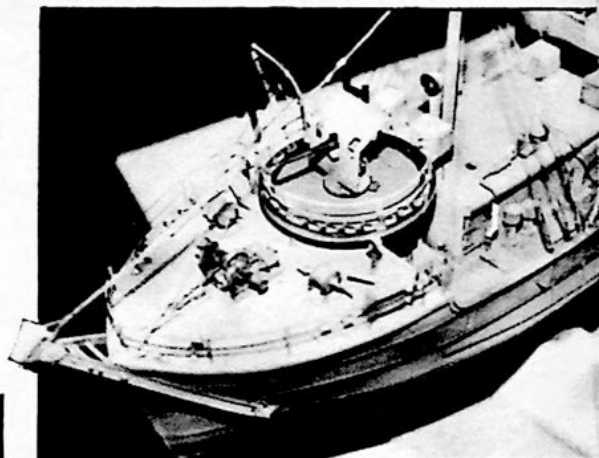
We then drew the meeting to a close at about 6 o'clock.



The Poole lifeboat model by Roy Curtise received 47 per cent in the static judging.

qualify for the MPBA Nationals. Well that's quite simple, you go along to any of the qualifying rounds (in the South we run them on a league system), the top qualifiers are put through to represent each area at the Nationals. If Mr. Ruffles looks at last April's column he will see where they are being held, etc., remember though that anyone who is a member of the MPBA has a right to try for the Nationals, in fact the more who try the better.

Now let's get down to the serious business. On the last Sunday in March, we held the third of our scale judging symposiums. This time with Naviga being so near we also took the opportunity to static judge the models being entered for the F2 classes. The day started well as for once it did not snow on the way up to Leicester. There was a very good turn out of members — 63, this spread roughly evenly between the three areas. Again we



Close up of the foc'sle deck on the prototype mine-sweeper Sir Kay, a new kit at 1/2 in. to 1 ft. 36 in. long, soon to be released by Calder Craft. Photos: David Metcalf.

All those who had attended the symposium should have by now received notification on how they did. It took me ages to mark all the papers fairly, and in the end I discovered I spent very nearly 30 hours on working out averages and then comparing them to each paper and marking it. I do apologise to you all for the delay in you getting your results. I will be publishing the results in this column shortly.

The scene for Naviga now moves on to 14 April, the all important eliminators. These were held in two locations, one at Kirklees Model B.C., Wilton Park, Batley.

Top judged models in the classes were as follows:

F2A 600 to 1100mm

D. Abbott, <i>Esk</i>	82%
A. Locks, <i>Stormlight</i>	78%
D. Wilson, <i>Northlight</i>	52%
D. Wilson, <i>Celia</i>	38%
B. Peach, <i>Eskgarth</i>	23%

F2A Junior

M. Spindler, <i>Wotan</i>	47%
M. Leslie, <i>Sea Star</i>	34%

F2B 1100 to 1750mm

R. Thayne, <i>Star Perseus</i>	74%
A. Locks, <i>Hibernia</i>	69%
J. Wilson, <i>Tanker Barge</i>	45%

F2c 1750 to 2500mm

T. Shaw, <i>HMS Tynedale</i> (to be finished)	
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K. Bragg, <i>Pilot 20</i>	82%
J. Wilson, <i>Sir Kay</i>	56%
R. Curtise, <i>Lifeboat</i>	47%
D. Leslie, <i>Smit Finland</i>	41%
D. Abbott, <i>Tod Head</i>	71%

S. Leslie, <i>Sea King</i>	34%
----------------------------------	-----

P. Arnott, <i>Henry</i>	70%
T. Olliffe, <i>HMS Avenger</i>	58%
R. Thayne, <i>St. Benedict</i>	66%

There were no juniors in F2B or F2C. These scores were then carried forward to the court judging.



Away from the NAVIGA selection meeting, David Abbott (centre) builder of the Esk, together with Jim Worner (left) and Geoff Stocking, were the judges at the Grand Exhibition held during Primrose Valley Model Week in early May. Below: Roger Thayne's Star Perseus, now available as a MAP plan was top qualifier in F2B.

This event was organised and run by the Northern Area scale representative, Dave Miller; the other eliminator was at Kingfisher Model B.C., North Camp Lake, Farnborough. Both lakes had the standard Naviga 30m clover leaf course out, the weather in both cases was virtually the same, strong winds, gusting to heavy, same calm periods mixed with rain showers, all in all typical regatta weather.

I attended the event at Farnborough and there was quite a good crowd in attendance, plus nearly all of the models from the area that were at Leicester.

We all got a nasty surprise when the first boat off for the day, Keith Bragg with his *Pilot 20*, in the most appalling weather, sailed a clear round, rather setting the standard for the rest present. We put every one round the course three times, then selected their best score and worked on that, we had also to bear in mind that they had only 7 minutes per boat, also that to the MPBA rules, when it came to final selection that they had to achieve an average score of 70%, although we waved this rule in the case of Juniors.

I will say that at Farnborough we had a good time. We pushed everyone around at a good rate, the wind being very variable, and we had only two more clear rounds, Alan Locks with his small puffer *Stormlight* (this was an excellent effort, as at the time the model was virtually hidden in the troughs of the waves) and Tony Olliffe with his *HMS Avenger* (Tony only scored 6 on his first round owing to mechanical breakdown). The time limit rather spoilt the effect of Tony's model on the water as he had to drive her around on full speed. Although this is the correct Naviga rule it does rather seem to spoil the purpose of building scale models if they all have to charge round! One seasoned heckler was heard to shout as Alan Locks puffer came to the last set of buoys "Hello, the captain wants to go water-skiing", a fair comment really. Perhaps we ought to consider putting a proposition forward at the next scale A.G.M. that the time limit should be extended.

After a rough windswept day I returned home to await the call from David Miller as to how his men had fared in the North. I suspect they had a day very near the same as us, as again they had only managed three clear rounds all day. I did note though that two of these went to



David & Jim Wilson, also very encouraging was to see that young Simon Leslie had also achieved a clear round with his *Sea King*.

I was then able to sit down and work out the percentages, those that achieved over the statutory 70%, and then select the top three in each class to go to Naviga. The forms were in the post the next day, with strict instructions to have them back to me by return of post, then horror of horrors, the postmen went on strike, fortunately for only a week.

The list of those who have qualified is:

F2A Senior (600 - 1100mm)	
Keith Bragg. Polish pilot cutter <i>Pilot 20</i>	91%
Alan Locks. Clyde puffer <i>Stormlight</i>	89%
David Abbott. Whitby Dredger <i>Esk</i>	82%
F2B Senior (1100 - 1750mm)	
Roger Thayne. Star Perseus, Diving support vessel	83%
Tony Olliffe. Type '21' frigate, <i>HMS Avenger</i>	78%
Alan Locks. Diesel Tug <i>Hibernia</i>	77½%
F2C Senior (1750 - 2500mm)	
Trevor Shaw. Destroyer <i>HMS Tynedale</i>	

A couple of these models will be familiar to readers, the *Pilot 20* and the *Star Perseus* are available from the Plans Service and have been the subject of plans features within the last twelve months.

I have however included some photo's of the models, not all of them. I am sure if you study them carefully you will see that we are sending the best possible team to these championships, and although we may not win any medals we will be well represented for the first time in years.

Now let's move on to the Juniors:

F2A Junior (600 - 1100mm)	
Mathew Spindler. North sea Trawler <i>Wotan</i>	71%

Simon Leslie. Motor cruiser <i>Sea King</i>	67%
Mark Leslie. Motor Yacht <i>Sea Star</i>	64%

These are the only juniors going, a special best of luck to these three, I hope they do well and enjoy themselves. Each will be receiving a grant from the Jim King trust fund towards their expenses and I know Jim would be very pleased to see them going.

Well that's about it for *Naviga*. I do know that there are plans in the South to have a 30m *Naviga* course out nearly every other weekend at different venues for people to practice on before the actual event, however as this is going to be a fairly flexible affair I cannot give any exact dates or venues at this stage, however all qualifiers will be advised.

Now on to another event that will be of interest to all you out there. It is a tug-towing competition, sponsored generously by *Calder Craft Ltd.* The northern event at Bury on 30 June missed our deadline, but the southern meeting will be at *Stevenage Model Boat Club*, Fairlands Valley Lakes, Fairland Valley Road, Stevenage, on Sunday, 20 October, '85.

The event will be for Team Towing, now this does not mean that you have to have a Tug, any model is acceptable, as long as it has reverse, and any sort of power is acceptable. They must however resemble a model boat. There is no pre-entry or entry fee, the events are for teams of two or three models, there will be two sizes of casualty, one model will have to be tied on, however no one will be allowed to tie on alongside the casualty.

The prizes being offered are really exceptional, the winning teams will be given a choice of one of the more expensive *Calder Craft* kits (*Joffre*, *Talacre*, *Northlight*) each, those placed second and third will be given a choice of the middle range kits and the cheaper kits. This really amounts to a very attractive set of prizes, worth in value over the two regatta's well over £1,000 and certainly well worth having.

The rules will be fairly simple and every one will be in with a chance to win something certainly worth having, remember entry is open to anyone, you do not have to be an experienced tug captain. I suggest you pop along and have a go, it should be a good fun day out.

Well that really is it for this time, not a lot more that I can really say. It is nice to be in the regatta season and I will look forward to seeing you all around the regatta's, until then, Happy Boating!

(Cell Sort - from page 417)

Because I like to see what is going on, I put LED indicators on all the relays as well as the very necessary plain diodes to protect against reverse voltage spikes on de-energising.

Trials

When the system was first connected up and programming was under way, a major snag appeared. The charge current measurement was incorrect and even worse was inconsistent. Much head scratching and not a little swearing later, the problem was traced to the fact that I was using a mains charger. The 'slow' A/D converter on the Beeb was happily measuring 'instantaneous' ripple current values resulting from the rectified mains. A quick change to DC charging from a bank of large wet Nicads (also from the surplus market) cured the problem. However, it showed that all is not always simple in simple electronics.

Another major snag with the tidied up version arose from the provision of cell holders for quick changes of cells. The contact resistance of 20 cell-ends proved to be such that the intended 25 amps discharge current was reduced to a mere 15 amps. Anyone out there want 30 cell holders? The crude but simple answer to this problem is shown in Fig. 2.

All that remains now is to outline the program. I doubt that the Editor would want to print the entire thing, it's about 10 kilobytes long, but I would be willing to provide copies or tapes for a small fee. (Requests via our offices, please. Ed.)

The program

The system starts with fully discharged cells, and goes through the following routine. Switch to charge at a rate predetermined by me depending on the size of the cell. Initial trials have all been done at about the one hour rate, but I intend to investigate the effect of all sorts of charging regimes from trickle charging to pulse charging at very high intermittent rates to see what effect this has on the capacity of cells. During charge each cell voltage and the current is measured at one minute intervals and the values filed on tape (I can't afford disc storage as well as boating), printed out on paper and the screen display is updated. With this version, when the first cell reaches its peak voltage, charging is terminated and a cooling period of 15 minutes commenced. This over, discharge is begun, again at a rate predetermined to suit cells and intended race time. Cell voltages and current are measured at 15 second intervals until the first cell drops below 0.5 volts, when the discharge is stopped, and 30 minutes allowed for cooling. All the results are printed out as the test proceeds and again put on tape for future analysis. After cooling, the same charge/discharge cycle is repeated as many times as required, usually five.

The whole test of say five cycles can take as long as 20 hours and when I get on to trickle charging will take even longer, but the system has proved reliable enough to run unattended, and I have settled into a routine of installing a set of cells late in the evening and setting a test in motion, so

that by the following early evening it is ready for me to recharge the big nicads and start on another set of cells.

Results

The first fact of note emerging is that all cell data published by manufacturers that I have seen, is very conservative at the high discharge rates we use. For instance, most data says that at 20 amps from a 4 Ah cell (D size), you will not get more than about 3AH or 180 Amp-mins instead of the nominal 240. I have cells which yield 300 Amp-mins and more, and in fact I now regard the nominal capacity of 240 amp-mins as the worst acceptable for a D size cell. This must be the result of either better charging practice or cycling, because they are not special cells in any way and some are quite old.

This exposes another myth, that you need new cells regularly. My best cell of all is one from a pack I bought in 1981 and which has powered every run of every boat over at least four seasons, which must be well into the second hundred of discharges and that was from a cheap cell offer. Who says an electric multi-boat is expensive to run?

Another matter of interest is that a bunch of brand new cells, all from the same manufacturer's batch will show a greater variation in performance between the best and worst than you will find between 'acceptable' cells of any make or age in almost any working fast electric boat. Hence the need for cell selection.

Meanwhile, back to the test bench to get another set of cells on the go!

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Bring the family and enjoy a weekend in the Lake District.

Admission: Modeller accompanied by model, free. Send S.A.E. to address below for free admission ticket.

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Materials

Old instructions often used to start 'Take a block of wood . . .', the block in many cases being almost like half a railway sleeper. Things have changed a bit, since even if vast blocks for carving one-piece hulls were available the cost would be astronomic and better methods and different materials have been introduced over the years.

Except for ply, wood as first choice has almost disappeared from model power boats, since nowadays for any hull other than a hard chine one's thoughts seem first to turn to g.r.p. (glass-reinforced plastic, or what is still loosely termed 'glass fibre') at least for larger hulls. In smaller sizes the possibilities of vacuum-formed styrene hulls may be investigated. Either of these materials is excellent for a hull, but unless a builder is prepared to go to the trouble of making a plug and either finding a friendly vacuum-moulder or making a g.r.p. mould, followed by a hull, he will have to use a commercially-available moulding, and this must to some extent restrict his choice of model.

We are, of course, basically considering the man who is building to his own design or working from a shipyard plan. There are still some wood kits about, and published plans usually show wood construction, but the proportion of builders prepared to carve a bread and butter hull or undertake a plank-on-frame one has diminished noticeably over the last 20 years or so. This is partly due to the difficulty of obtaining suitable timbers and the cost if a source is found, but there has also been a change in attitude in modellers themselves, and this has been slowly taking place over a much longer period.

Trends

Sixty years ago most power plants were hand-made, usually by the modeller himself. As commercial engines became available there was less need for a modeller also to be a model engineer, since he could buy an engine as good as and probably better than he could make. This attracted more people to model boating. One illustration was the separation in the early post-war years of home-built and commercial 10cc engines in Class C hydroplane racing. A similar thing happened, on a more condensed time-scale, with radio control. Early radio boaters built their own gear, but when it could be bought at model shops at reasonable cost, many home-builders changed to commercial equipment because it was of high quality. A lot of new modellers were also attracted to the hobby.

It should be no surprise that something of the same should be happening with hulls now that they can be commercially produced. Building a hull is time-consuming and open to errors which affect its use and take time to sort out, just as engines and radio equipment take time to build and may need adjustment to perform reliably; many people who would not have the confidence to tackle a hull are becoming boating enthusiasts as a result.

There will, of course, always be those

Starting In Power

Vic Smeed begins a major new series designed to help those starting out in i.c. model boating

whose satisfaction is derived from building, just as there are still people enjoying constructing their own engines and a surprising number who assemble their own radio gear, although the last may possibly be influenced by financial considerations.

Plastic hulls, either g.r.p. or vac-formed, do have a number of advantages. They provide the maximum interior space, are strong and light, do not absorb water or oil etc. to any significant extent, can be locally reinforced easily and quickly, and are not difficult to work with or to repair. Repair is infrequent if the initial fitting out was properly done, since natural faults such as splits which can occur in timber do not appear in plastic. The likeliest fault is a glued joint separating because it wasn't properly made; the delamination, blistering and so on which causes concern in full-size boating rarely arises with models.

Choice

Someone considering building a model for the first time has a number of choices to make, and perhaps the most basic is what form of power does he fancy? This may be influenced by what sort of boat or performance appeals to him — 'may' because there are some boats where more than one form of power can be used. A beginner enthused by multi-racing is not going to consider a steam plant, but, say, a tug can be electric, steam or i.c., in which case the type of model is the first choice and the form of power secondary. A further factor may be size, which will influence choice of type and power, or even intended area of operation, since for example i.c. engines may be banned on the lake on which he expects to do most of his running.

Having formed a general picture of what he would like, the next choice is whether to build from a kit, a plan, a ready-made hull with or without plans for superstructure, or whether to design his own model. The last is not recommended for a first freelance or high performance model, but is a possibility for a scale subject provided the beginner is intelligent enough to appreciate his lack of experience and is prepared to read up structural techniques and adapt them to his choice of subject. Other provisos are, of course, that he possess adequate drawings of the intended prototype and that it is a suitable vessel to pick.

Most beginners are likely to start with a kit and, once again, a number of elements are involved. A major one may be price, which is effected by size, complexity, amount of preforming, etc., carried out by the manufacturer and the international

exchange rate, if it is one of the many excellent imported kits. It is important to establish exactly what additional items will need to be bought, as although most people would expect to buy a motor and radio equipment separately, a lower-priced kit may require quite a bit more expenditure on shaft and propeller, fittings and the like which are included in the apparently higher-priced equivalent.

Some people prefer the idea of working with wood, which places quite a restriction on their choice with so many present-day kits including ready-formed hulls. Most all-wood kits are for hard chine launch-type models, but there are several of composite or even planked construction still to be found among scale subjects, mostly for electric power. In fact there seems to be some sign of a revival in planked hulls in the 'up-market' area of imported kits, all for scale models.

A beginner wanting to use a diesel or glow engine in an all-wood kit model is more or less limited to a hard chine hull of the 'cabin cruiser' type, but these are among the lowest price kits and are straightforward and quick to build. Probably most of today's expert boaters started off by building just this type of kit. Almost all composite and planked hull models are intended for electric power only, though some are designed round small steam units.

Probably a majority of imported kits contain vacuum-formed styrene hulls (considering working models only, of course) and most are scale subjects. There are competition boats with styrene hulls but those intended for i.c. engines are most likely to employ g.r.p. mouldings and they are relatively few compared with scale models. Interestingly, a much higher proportion of British kits are supplied with g.r.p. hulls, although there are a few using styrene and the number may well increase. One reason for the difference is the considerable cost of a steel production plug for repeated vacuum-forming; there are several European manufacturers who obviously think in terms of much larger production runs than have been considered to date by British firms, and the tool costs can therefore be spread over many more units.

In general, styrene hulls are most suited to electric power, although they have been used for both i.c. and steam. G.r.p. suits any sort of power but may be a shade heavy for smaller boats, say under 30in. The cost per hull is higher for materials and time with g.r.p. but the tool costs are lower. From the user's viewpoint g.r.p. is stiffer and stronger weight for weight and, in many opinions, easier to use.

Probably the cheapest way of building

is to work from plans, although a little more work is entailed insofar as parts have to be traced and cut out, although from time to time g.r.p. or styrene hulls for some published plans are available. One advantage of plans is that less time and expense is involved in producing the master copy, so that designs can be produced and kept available for vessels that would not be economic propositions in kit form. This means that there is a greater choice. A good beginner's plan will show all required parts full-size for tracing and will specify materials which are generally available.

Not all plans show model structure, particularly when they are of scale subjects, when they can simply be drawings of actual ships in profile and plan, with a body plan showing the cross-sections at intervals along the hull. Most newcomers are at a loss to know how to use such a drawing to make a model and this is a subject to which we will return later in this series, but in any event it is far better for a beginner to have complete guidance and he should therefore look for plans which do have full structural details and are described as suitable for beginners.

The position with g.r.p. hull-only purchases is in some ways strange. Functional competition boats for speed, steering, multi-racing, etc., are usually supplied as hulls with decks bonded in place and should ideally be accompanied by brief plans or sketches showing recommended propeller position, rudder size and position and overall balance point. In effect one is buying a complete boat less engine mounting, prop shaft and rudder. Apart from installing these items, plus engine and radio, the only work which might be needed is a cover for the radio compartment.

This is totally different from a sport or scale hull, which will come as a bare g.r.p. or styrene shell with possibly the hull edge requiring to be trimmed and quite a lot of work to be done in fitting a deck and making the superstructure etc. A drawing is then essential, unless the builder proposes to fit a freelance superstructure or one based approximately on a vessel he fancies.

Conclusions

Although the foregoing can only be written in general terms, some conclusions can be drawn, but in setting

these down it must be remembered that they are intended to advise the average beginner. There are always exceptions, or practices which are acceptable for an experienced modeller, and the comprehension and ability of beginners is bound to vary. However, for a first boat:

- (1) If an i.c. engine is to be used, a hard chine design is best. In wood, there are some kits and a wide choice of plans. In g.r.p. there are some kits, some hull shells and a fair assortment of almost ready to run hulls.

- (2) Vacuum-formed hulls are not often used with i.c. engines.

- (3) If a steam engine is the choice, a wood or g.r.p. hull of scale type is usual. There are some kits with wood or g.r.p. hulls and quite a number of plans for wood construction. Check that the design is intended or suitable for steam. A number of g.r.p. shells can be used for steam and this is often an area for freelance superstructures.

- (4) Electric propulsion is the most widely used and is suitable for most boats. Performance in a launch-type hull will be inferior to i.c., unless fast-electric techniques are applied and this is not recommended for a first boat. Most scale models and most vac-formed hulls are intended for electric power.

- (5) Wood-planked hulls take longer to build and are exclusively scale or scale-type models. There is currently a selection of kits and it is best to pick a straightforward one without a lot of superstructure details for an initial attempt. There are also plans.

- (6) Bread and butter (laminated) construction is uncommon in kits but a number of scale ship plans show it.

- (7) Ensure that you have some idea of what is included in a kit in order to compare total cost. A lower-price kit for which a fittings set may have to be bought could work out at more than an apparently expensive kit which, however, includes all requirements.

- (8) Check that a plan is for building a model and shows all the necessary structure. You can move on to less detailed plans later.

- (9) Before starting to look seriously at kits, hulls or plans decide what size, what form of power and what general type of model most interests you, bearing in mind where it will more frequently be run.

- (10) Don't start with too tiny a model. Bigger ones are often easier to build and are roomier for motor installation (and

radio, if used) and the difference in cost need not be excessive.

- (11) Don't be over-ambitious. A lot of elaborate kits never get finished. Something reasonably simple should be chosen for a first model; whether a kit includes a finished hull or not is a matter of personal choice, but it obviously shortens building time. Simplicity does not mean that the finished model has to be crude or ugly.

- (12) Building from a plan takes a little longer but costs less and the expenditure can be spread over a period.

- (13) Don't rush construction, but put your best work into each part. If you make a mistake in cutting a few pence spent on a replacement piece of timber is better than trying to bodge a part. Not only will you have greater pride in the completed result, but you will derive greater pleasure in operating. A hurried model that falls apart in some vital area on its maiden trip can dampen enthusiasm.

- (14) Look carefully at the cost comparison between a British and some imported kits. Movements in the exchange rates over the last few months have altered the value-for-money relationship in favour of home-produced kits and some excellent ones have been introduced in the last year or two.

- (15) Bear in mind that the expensive bits — the engine or motor/battery pack and the radio if used — are easily transferable to the next model and with care will last for several seasons. Remembering this puts into perspective what may seem to be a heavy initial outlay.

- (16) Finally, seek information from all possible sources. A local club is ideal (they've all been through your stage) or you might be lucky and have a genuinely knowledgeable boat enthusiast in a nearby model shop. Read everything you can find: your public library can get in books, possibly even past volumes of this magazine, and you can learn a surprising amount even by reading advertisements! Any articles, etc., on boats similar to the one of your choice can provide snippets of information on motors and prop sizes or ways round awkward bits of construction, alternative colour schemes and the like. If you haven't yet decided, what size motor is used in what size and type of hull, or what competitions are all about and similar information can all help shape your choice.

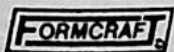
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Model Power Boat Association Regattas

This list is produced by and for members of the Association and it is left to the discretion of the organisers of all the events shown whether non-members are allowed to compete. One of the pre-requisites is that their insurance cover is comparable to the MPBA's, namely £1,000,000 Third Party liability and £2,000 Personal Accident Policy.

The events detailed below are extracted from the Model Power Boat Association's 1985 Regatta List. A full year's listing is available direct from the MPBA Sales Secretary for 50 pence plus a large 9in. x 6in. SAE. The address is: 1 Wentworth Cottages, Haultwick, Dane End, Ware, Herts.

Scottish Area

- July**
 7 The Clyde Cup, Team Event, hosts Irvine at Irvine.
 13 Paisley 150, Venue Riley Quarry, Paisley. Pre-entry to Simon Wallwork.
 21 Highland 100. Pre-entry to Jack Wilson, Inverness.
- August**
 4 Fourth Leg Drivers Championships. Hosts Springburn at Springburn.
 18 Scale Open Day, Bingham Pond. Hosts Glasgow West.
- September**
 8 Half Hour Finals, England (Midlands) two day event.
 15 Fifth Leg Drivers Championships. At Inverness.
- October**
 6 Open Day, hosts Strathaven at Irvine.
 27 Scottish Area Annual General Meeting, Waverley Hotel, Perth.
 The Scottish Area Secretary is Mrs. Frances Wilson, 41 Bruce Avenue, Inverness.
 Durrstock Park is Paisley. Details from Simon Wallwork, 2 St. Filland Drive, Houston, Renfrewshire.
 Glasgow West Scale, contact Douglas Scott, 50 Lilac Avenue, Clydebank.
 Irvine club, contact Ian Webb, 20 Barnett Crescent, Saltcoats.
 Springburn club, contact Jimmy Patterson, 68 Belstone Road, Carlisle.
 Inverness, contact Jack Wilson, 41 Bruce Avenue, Inverness.

Northern Area

- July**
 7 LIVERPOOL, Walton Hall Park, 11.00am Tug Towing sponsored by Alexandra Towing, two or three boat teams.
 7 *HULL, East Park, Hydro regatta.
 14 MANCHESTER, Debdale Park, Northern Area half hour Eliminators. Pre-entry to F. Bradbury.
 14 *HUDDERSFIELD, Highfields, Scale Ships, Scale and semi-scale, SR & nom. 11.00am.
 21 TYNE & WEAR, Heaton Park, Paddy Freeman Park, Northern Area Straight Running Champs.
 21 FEATHERSTONE, Purston Park, 10.00am, Tug Towing regatta, two boat teams.
 28 BOLTON, Crompton Lodge Lake, Bolton Metro Enduro multi racing, 60 min. heats, anti clockwise, £1.50 per boat. Pre-entry D. Marles.
 28 CLEETHORPES, Sidney Park, Ullian Dellamy Memorial Trophy, 11.00am Northern Area Scale Eliminator.
- August**
 4 SHEFFIELD, Millhouses Park, Scale 11.00am.
 4 *BIRKENHEAD, Gaultby Road, Open hydro regatta, 11.00am.
 4 MANCHESTER, Debdale Park, Gorton, open multi racing, 10.00am. Pre-entry F. Bradbury.
 10 BURY, Alexandra Park, Oldham, Two day event. Entrance fee on day. No i.c. engines. Scale and semi scale.
 11 BURY, Alexandra Park, Oldham, Second day.
 11 *HULL, East Park, Hydro regatta.
 18 *HULL, East Park, 11.00am tug towing, Two boat teams.
 18 *BURY, Clarence Park Lido, open scale, Burnley Trophy, 11.00am.
 25 CLEETHORPES, Sidney Park, Scale, Bob Brown Trophy, 11.00am.
 25 LEEDS, Roundhay Park, multi racing, British Grand Prix, £1.50 per boat, 10.00am start, anticlockwise. Pre-entry J. Barraclough.
 26 International Hydroplane Regatta, St. Albans.
 26 LEEDS, Roundhay Park, Printers' Gala, multi racing, £1.50 per boat, 10.00am start, anticlockwise. Pre-entry J. Barraclough.
- September**
 1 LIVERPOOL, Walton Hall Park, 11.00am Electric Scale. SR & Nom. i.c. ST Ted Potter Trophy.
 1 FEATHERSTONE, Purston Park, open scale, 11.00am.
 1 HULL, East Park, multi racing, A.B.C. & SI plus speed 10.30am. Pre-entry G. Lison.
 7/8 SHEFFIELD, two day event at Rother Valley, National half hour Multi Race Finals. Competitors will be notified by Area Rep.
 8 National Straight Running Championships, Venue at Bournville, Birmingham.
 8 *HUDDERSFIELD, Highfields, Scale and Semi scale ships, SR & Nom. 11.00am.
 15 National Scale Finals, Bury, Lancs. Competitors will be notified by Area Rep.
 15 HULL, East Park, hydro regatta, 11.00am.
 15 BOLTON, Crompton Lodge Lake, multi racing, A.B.C. & SI, £1.50, 20 min. heats, 40 min. final. Final anticlockwise. Pre-entry D. Marles.
 22 *BURY, Clarence Park Lido, 11.00am scale, Henderson Anchor Trophy.
 22 *BIRKENHEAD, Gaultby Road, multi racing, A.B.C. & SI, £1.25 per boat, anticlockwise, 40 min. heats. Pre-entry M. D. Allen.
 29 *BIRKENHEAD, Gaultby Park, Open SR, 11.00am.
 29 Eliminators for World Championships in Milan 86, NAVIGA Multi, at Coventry, Wyke Slough. Pre-entry by post to B. Warburton, last dated post mark July 31, 1985.

*Refreshments available.

Pre-entry address

F. Bradbury, 30 Green Park Road, Northenden, Manchester, M22 4DR.
 J. Barraclough, 3 Lyndhurst Grove, Allerton, BD15 7AS.
 P. Kirk, 34 Appleton Road, Heaton Chapel, Stockport, SK4 5NF.
 A. Graham, 4 Wirral Mount, Wallasey, Merseyside.
 L. Cropper, 95 Rainbow Avenue, Hachenthorpe, Sheffield 12.
 M. D. Allen, 64 St. Nicholas Road, Wallasey, Merseyside.
 G. Lison, c/o H & L Motors, 100 Sculcoates, Hull.
 B. Warburton, 4 Island Road, Liverpool.
 N. Rees, 155 High Street, Ramsgate, Kent.
 The Northern Area Secretary is Mrs. Ann Finnis, 7 The Ridgway, Linthwaite, Huddersfield, Yorks.
 The Northern Area Scale Eliminators and National Finals are being sponsored by EVER READY.

Midland Area

- July**
 6/7 TELFORD, Two day event.
 14 NORTHAMPTON, MIDLAND AREA half hour ELIMINATORS, 10.00am start, £1.25 per boat.
 14 NOTTINGHAM, Open scale, Highfields Lake, 10.30 start.
 14 ELECTRA, F1E Restricted, F1E - 1 kilo, F1E + 1 kilo, F3E, FSRE Restricted, FSRE - 2 kilo, FSRE + 2 kilo, Restricted, FSRE plus 2 kilo.
 21 KINGSBURY, open multi, A.B.C. & SI, £1 pre-entry.
 21 COTSWOLD, South Cerney, Hydroplanes.
 28 SOUTH WALES Federation, open and inter club, Half hour A.B.C., Cosmeston Lake, Penarth.

August

- POTTERIES, Westport Lake, open scale, 10.30, £1 on day.
 PETERBOROUGH, open multi, Orton Mere, A.B.C., 10.00am, £1.00 pre-entry.
 NORTH BIRMINGHAM, open multi, A. B. C. & SI, 10.30 start, £1.00 pre-entry.
 COTSWOLD, South Cerney, Midland Area Hydroplane Championships.
 KINGSBURY, open scale, Kingsbury Water Park, 10.30am, £1 pre-entry.
 26 COTSWOLD, open multi, A.B.C. £1 per boat pre-entry.
 26 International Hydroplane Regatta, St. Albans.
 Addresses for pre-entry and enquiries. Please include a stamped addressed envelope.
 Baggeridge, R. Don, 55 Whiteoak Drive, Finchfield, Wolverhampton.
 Coiswold, H. Gray, 21 Rutland Crescent, Trowbridge, Wilts.
 Coventry: D. Tunnicliffe, The Leys, 86 Buckingham Lane, Nuneaton.
 Derby: C. Thompson, 36 Thoresby Road, Long Heaton, Nottingham.
 Kingsbury Scale: B. Poulter, 41 Springfields, Colehill, Birmingham.
 Kingsbury Multi: Tel. R. Allwood 0675 70318.
 Leicester Scale: I. Adcock, 252 Gwendolen Road, Leicester.
 Northampton Scale: K. White, 38 Rennishaw Way, Northampton.
 Northampton Multi: M. Fields, 125 Reynards Way, Kingsthorpe, Northampton.
 North Birmingham: R. Holden, 7 Westport Crescent, Wolverhampton.
 Nottingham: B. Thornton, 5 Ennismore Gardens, Aspley, Nottingham.
 Peterborough Scale: R. Dean, 53 Smallwood, Ravensthorpe, Peterborough.
 Peterborough Multi: T. Sidwell, 14 Barnes Way, Werrington, Peterborough.
 Potteries: T. Edmonds, 63 Nut Brook Avenue, Stoke on Trent.
 Telford Scale: D. Warren, 1 Talbot Close, Wrockwardine Wood, Telford.
 Telford Multi: T. Arbon, 30 Preston Grove, Trench, Telford, Shropshire.
 Welsh Federation: All events £1 per entry, half price if unemployed. Entries to: Mrs. Harris, 82 Laurel Road, Bassaleg, Newport, Gwent C. Brooks, 1 Flwd Villa, Llangeinor, Bridgend, Glamorgan.
 Scale Eliminators: I. Adcock, 252 Gwendolen Road, Leicester.
 Brian Warburton, 4 Island Road, Liverpool.
 N. Rees, 155 High Street, Ramsgate, Kent.
 The Midland Area Scale Eliminators are sponsored by EVER READY.
 The Midland Area Secretary is Tony Arbon, 30 Preston Grove, Trench, Telford, Shropshire.

Southern Area

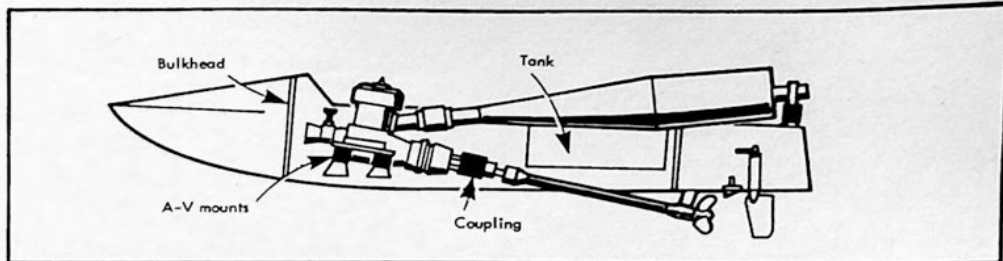
- July**
 7 HY HYDROPLANE CLUB, Bradwell Wick, all classes, Southern Area Hydroplane Championships.
 7 SR VICTORIA, Victoria Park, Hackney, 11.00am steam regatta scale boats, ships, functional and RC steam power only, static display of steam models, no fee.
 7 RC SC CYGNETS, scale stand off — kit, maximum two boats per person per class, plus tug towing, contest for two man team, 10.00am start, 50p per boat, Mote Park, Maidstone, Kent.
 7 MR EASTBOURNE, A. B. C. classes, 10.30 start, £1 per boat, with final, racing for Alderman Taylor Trophy, Princes Park, Eastbourne sea front.
 7 SC MOORHEN, tug towing team and individual, 10.30 start, 50p per boat.
 7-14 YATE & SODBURY, Yate Festival, open scale regatta and week of event. Details from D. Battison, 14th will be an International event.
 14 SR HY ST. ALBANS, Verulamium Park, St. Albans. The GRAND Regatta, 11.00am start, scale boats, scale ships, wedge, functional hydroplanes all classes, MPBA Steering Cup, Veteran Trophy, Prototype Cup, MPBA noise and speed limits apply, £1 per person.
 16 SC CRAWLEY and District Scale sail, i.c. Night regatta, 7.30am start.
 21 SR MERTON, 11.00am start, scale boats, scale ships, wedge functional, 50p per person, 72db at 6 metres, Rushmere Pond, Wimbledon Common.
 21 MR SOUTHERN AREA half hour ELIMINATORS, Basildon are the hosts. Venue is Northlands Park, East Mayne, Basildon, wellies required. Pre-entry to Syd McGoun.
 21 SC MID THAMES, scale steering, scale stand off and kit. Pre-entry preferred, 50p per entry, Child Beal Wildlife Park, 10.30 start.
 21 SC KINGFISHERS, Southern Area Scale Finals. Also event open to all scale modellers of MPBA event at Farnborough, see addresses.
 28 MR HERNE BAY, multi racing classes A. B. C. £1 per boat on the day, wellies required for launching, 10.30 start, venue at Bretts Ballast Quarries, Oare, Nr Faversham, Kent.
 28 SC MID THAMES, scale steering, scale stand off and kit, pre-entry preferred, 75p per entry, 10.30 start, Child Beal Wildlife Park, Lower Basildon, Pangbourne, Nr. Reading.
 28 RC SC WESSEX, scale, scale stand off, 10.30 start, Queen's Park, (golf links), Bournemouth.
- August**
 4 RC SC VICTORIA, Victoria Park, Hackney, 11.00am start scale boats, scale ships, wedge, functional only. Also stand off scale functional, RC steering, 80db at 5 metres, 40p per person plus 10 each additional craft.
 4 MR THAMES VALLEY, six hour, 3 man team event. Pre-entry.
 11 MR CYGNETS, multi racing all classes, for endurance plate, 80db, normal multi rules, 10.00am start £1 per boat, entry on the day at Mote Park, Maidstone.
 18 SR HY VICTORIA, Victoria Park, Hackney, 11.00am start scale boats, scale ships, wedge, functional, Hydros classes, A. B. D. C., only 40p per person plus 10p each additional craft, 80db at 5 metres.
 18 MR EASTBOURNE, A. B. C. & SI, 2.30 start, Princes Park, sea front, £1 per boat.
 18 SC CRAWLEY & DISTRICT, Scale sail, i.c. 10.30 start.
 25 HY ST. ALBANS, Verulamium Park, St. Albans. Three day International event. Starting on 25th with St. Albans Speed Trophy for water screw A/S, 11.00am start, 30p per boat.
 The Southern Area Secretary is Ian Folkson, 3 Vincent Avenue, Hainault, Essex.
 The Southern Area Scale Eliminators and the National Scale Final are being sponsored by EVER READY.

Pre-entry and contact addresses

Wessex MBC: P. Dunbar, 169 Barrack Road, Christchurch, Dorset.
 Thames Valley: Russell Butler, 19 Selan Gardens, Hayes, Middx.
 Worthing & District: A. W. Cross, 12 Wessexley Avenue, Goring by Sea, Worthing, Sussex.
 Stevenage: Brian Williams, 489 Canterbury Way, Stevenage, Herts.
 Portsmouth: Darryl Thorne, 25 Fifth Street, Fratton, Portsmouth, Hants.
 Cygnets: P. Bridgewater, 22 Quickthorn Crescent, Walderslade, Chatham, Kent.
 Mid Thames: J. Cripps, 91 Tern Close, Tilehurst, Reading.
 Kingfishers: Roger Thayne, 112 Sheepwalk, Shepperton, Middx.
 Moorhen: D. Austen, The Rise, Takeley Street, Nr. Bishops Stortford, Herts.
 Southend: Dave Hallam, 12 Meesons Mead, Rochford, Essex.
 Crawley & District: Malcolm Jennings, 4 Burdock Close, Broadfield, Crawley, Sussex.
 Basildon: Basildon MBC, 93 New Road, Hadleigh, Essex.
 Folkestone: D. Honey, 3 Walton Road, Folkestone, Kent.
 Mayesbrook: Mr. Avery, 57 Fourth Avenue, Rush Green, Romford, Essex.
 Eastbourne: P. Ford, 6 The Sanctuary, Eastbourne, BN20 8TA.
 Stevenage British Open: Syd McGoun, 52 Housemans Avenue, Royston, Herts.
 Cygnets '57s': D. Stephenson, 30 Valley View, Greenhithe, Kent.
 Herne Bay: P. Bone, 133 Beltinge Road, Herne Bay, Kent.
 Yate & Sodbury: Derek Battison, 22 Spar Road, Yate, Bristol.

First and foremost I shall describe briefly the modern multi-racer. Practically all are semi deep vee, as this has been found to be ideal to deal with rough and smooth water equally well. This type of hull is also very good at tight manoeuvres. Again with very few exceptions these boats are constructed of fibreglass, both hull and top deck. In competition these boats fall into classes dependant on engine sizes, class A up to 3.5cc, class B up to 6.5cc, class C up to 15cc and class SI for up to 35cc with spark ignition. Competitions are mainly run by clubs affiliated to the Model Power Boat Association and are open to all if they are suitably insured. Some of the clubs are host to the MPBA by running the area championships and eliminators for the national finals; these championships are restricted to members of the association.

Most hulls and decks are purchased unjoined, and here again as I have said



'chopped strand mat' cut up into short pieces, referred to in future as resin paste. It can be bought from model shops as 'Supabuild'.

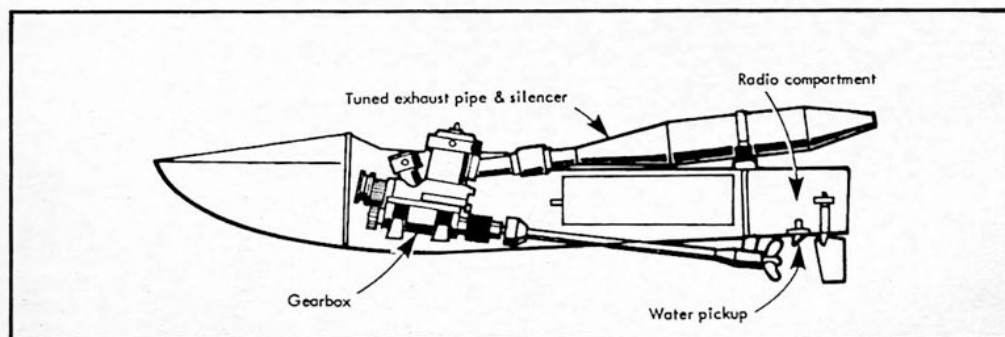
Drill the hull to suit the rudder post and secure with resin paste, ensuring it is vertical at least from side to side, while fore and aft, set to the angle, if any, as described in the setting up instructions. Cut out hull at position where prop-shaft passes through with a round file, being

together with slightly opening the holes for mounting the rubber mounts allows final fine alignment. The testing of alignment can be seen by rotating the shaft from the prop end slowly; if there is any movement of the engine adjustments should be carried out.

The top deck and hull are joined using resin paste and clamping the two together with spring type clothes pegs all the way round as close together as possible.

The Modern Multi-Racer

MPBA President Frank Bradbury takes an introductory look at today's racing machines



before, the methods described are only the ones I use and methods used by others I know. There are undoubtedly many different ideas for setting up a boat. The other advice is, as always, if you are new to the hobby, *do not* buy without seeking the help of fellow club members.

After first buying a hull the first step is to construct a stand! While the design of these are varied, care should be taken in building them. As the assembly of your boat is carried out on it, it will ensure that the hull is not twisted and consequently affect performance.

Method A

Great care should be taken in marking out the hull for the position of the rudder post, end of prop-shaft, central position where the prop-shaft passes through the hull bottom and the position of the engine.

All parts — rudder post, prop shaft, engine mounting, internal bulkheads and deck to hull are attached with a mixture of polyester resin (resin B) mixed with

careful to ensure a close fit with the prop-tube, filing until the angle and the distance from centre of shaft to bottom of hull is attained; do not secure yet.

Next mount the engine. A large proportion of boaters use gearboxes with 3.5 and 6.5cc engines, and the larger engines are direct drive. In all cases engines and/or gearboxes are mounted using rubber anti-vibration mounts. This is a universally accepted method contributing to noise suppression. The coupling of the engine or gearbox to prop-shaft also uses an anti-vibration mount of the heavy duty type. Engine mounting kits, shaft couplings and gearboxes can be purchased from boat specialising model shops such as Prestwich Model Centre in Manchester.

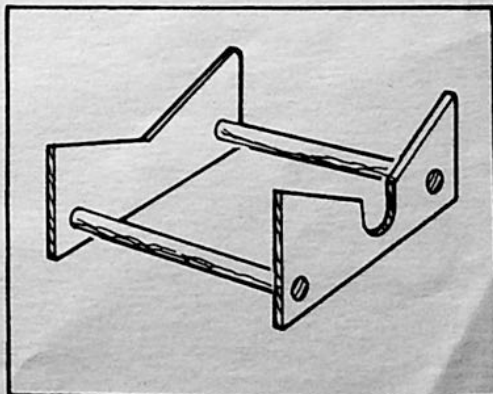
Careful is again the watchword when securing the engine mounting and prop shaft *absolutely* in line. Sometimes the fibreglass shrinks a little when setting and the alignment can be upset. My method of overcoming this is to fit one or two tinplate washers between rubber mounts and engine/gearbox, which

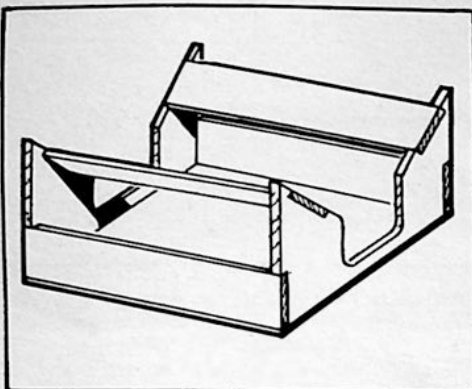
Method B

The hull and deck is joined together before any work is done, by the method described just above. The following method is that carried out and recommended by Dave Marles, the proprietor of Prestwich Model Centre, who is one of our most successful multi-racers.

Plan the position of the deck openings. Beginners should make these openings smaller than necessary in order to adjust them to the correct size and position after fixing the engine, prop shaft, rudder and radio installation. These cutouts can be made with a heavy duty hacksaw blade, ensuring that the opening for the fuel tank is adequate, because of later having to remove the tank for various reasons. If the fuel tank and engine bays are to have covers, hinge the engine cover at the forward end and the tank cover at the side with a piano hinge.

Drill holes for the rudder post and water scoop and fix with resin paste.



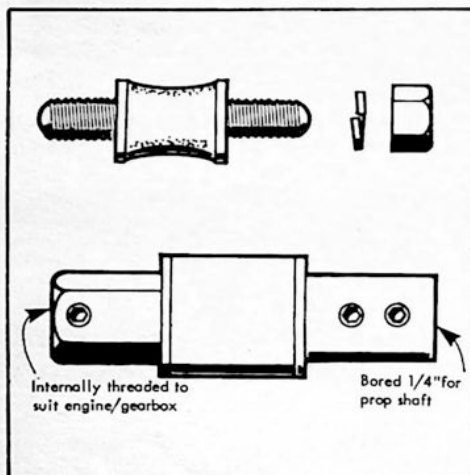


The hull deck joint can be strengthened by fibreglassing a layer of woven glass strip or mat round the inside edge of the joint. The outer lip can be completely removed with a hacksaw and file. The alternative is to cut the lip down to approximately 8mm wide and fit deck edging strip (see PMC catalogue GA28.). The deck edging can be softened by immersing it in boiling water for 30 seconds, then it can be easily fitted on the lip and secured with cyano glue when it has cooled.

For the front and rear bulkheads use pieces of cardboard which are cut carefully and fitted as patterns. If side bulkheads are required, similarly use cardboard patterns. Transfer these patterns to 1.5mm ply and fix in place

using the resin paste. A large hole approximately 1½in. is cut in the front and side bulkheads for the addition of buoyancy foam. This (two part polyurethane) should be added in small amounts so that the foam when it expands does not distort the hull.

Mark out the hull for the prop-shaft and skeg, make the cutouts and carefully adjust until the dimensions are achieved, also fitting the engine at the same time. A lot of time and patience should be taken on this as it is very important. The engine and shaft can be temporarily held in place with plasticene until you are satisfied with the positions as noted in the



construction dimensions given with the hull. It is important that the engine or gearbox is mounted as low as possible in the boat. It should be noted that by making the shaft angle steeper than suggested the boat may be slightly faster, but it will be unstable.

Next fit the fuel tank and fix its mountings in place with resin paste (PM40).

Using either plywood or aluminium alloy as a servo tray, fix the tray and the receiver in place. For throttle linkages use a bowden cable or a 16swg piano wire, direct through the centre recess of the fuel tank. The linkage to the tiller arm should be very stiff and rigid and as short as possible. The tiller arm and servo arm must be parallel to ensure that differential throw is not present.

Remove engine, engine mount, or gearbox and the fuel tank. Sand down all rough edges inside the boat. Remove the dust with a vacuum cleaner and apply a thick layer of glazing resin (PMC cat PM41).

There are many hull designs on the market and the following are just a few of my recommendations, here again I must stress that these are from my own personal experience, but I emphasize be guided by your fellow club members.

SMG Marine (Mfg) Ltd: *Barracuda*, *Pirhana*, and *Laser*; Racing Models: *Victor*, *Vantage* and *Valiant*; Prestwich Model Centre: *Jantar*, *Cyclone* and *Mirage*.

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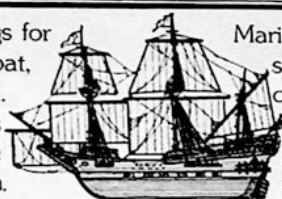
JULY				SEPTEMBER			
6	T' Cup.	RM	Birkenhead	1	Rocket Trophy.	RM	Cleveland
7	(L) Open Event.	RM	S. Wales	1	Cup	36r	Leeds & Bradford
7	<i>Met. & Southern District Championship.</i>	RA	Clapham			RM	Lincoln
7	(L) Avocet Trophy.	RM	Kings Lynn	1	(L) Brayford Trophy.	RM	Chelmsford
7	Charnwood Cup.	R10r	Leicester	1	Belton Memorial Trophy.	RM	Poole
13/14	12hr Endurance Race.	RA	Crosby	1	Laidlaw Dixon Trophy.	RA/R10r	Gosport
14	Cole Cup.	R10r	Birkenhead	1	Bilmor Cup.	'A'	Wicksteed
14	<i>Met. & Southern District Championship.</i>	'A'	Gosport	7	Wicksteed Rose Bowl.	'M'	Birmingham
21	<i>South Western District Championship.</i>	R10r	Woodspring	8	<i>Little Portugal Cup.</i>	'A'	Birkenhead
21	Spastics Cup.	RM	Gosport	8	<i>Northern District Championship.</i>	R10r	Hove
21	Open Event.	R36r	Crawley	8	(L) Hove Corporation Trophy.	RM	Chippenham
21	Thornhill Trophy.	RM	Leicester	8	(L) Open Event.	RM	Broads
21	Mayoral Trophy.	'A'	Fleetwood	8	(L) Broadland Trophy.	RM	Fleetwood
27	Open Event.	575	Chiltern	14	Wade Trophy.	'M'	Fleetwood
27/28	<i>MYA National Championship.</i>	RA	Poole	15	<i>Northern District Championship & District: Team & Woodhouse Trophy.</i>	'M'	Fleetwood
28	<i>Northern District Championship.</i>	36r	Birkenhead	21/22	<i>MYA National Championship.</i>	R36r	Milton Keynes
28	Windsor Trophy.	R10r	Fleetwood	22	Cleveland Shield.	RA	Cleveland
28	Open Event.	RA	Poole	22	(L) Bowman Trophy.	RM	Woodspring
				28/29	<i>MYA National Championship.</i>	6m	Bournville
				29	<i>Eastern District Championship.</i>	R10r	Kings Lynn
					<i>Midland District Championship.</i>		
				29	(L) St. Leger Meeting.	RM	Doncaster
				29	Wellworthy Trophy.	RM	New Forest
AUGUST				OCTOBER			
4	6hr. Endurance Race.	RM	Leicester	6	(L) Turner's Rose Bowl.	36r	Bournville
4-9 inc.	<i>MYA National Championship & Yachting Monthly Cup.</i>	'A'	Fleetwood	6	(L) Eastbourne Cup.	RM	Eastbourne
11	<i>Northern District Championship & Northern Team Championship.</i>	RM	Cleveland	6	(L) Open Event.	RM	Milton Keynes
11	<i>Midland District Championship.</i>	R36r	Bournville	6	Davidson Shield.	10r	Newcastle
11	Open Event.	RM	Hereford	6	Peter Bryon Memorial Trophy.	RM	Fleetwood
18	Andrews Memorial Trophy.	'M'	Birkenhead	6	Woodbridge Trophy.	R36r	Woodbridge
18	Yorks: Cash Register Trophy.	RM	Leeds & Bradford	6	(L) Drury Anchor.	'M'	Bournville
18	<i>S. Western District: Championship & Mickey Finn Open.</i>	R36r	Woodspring	13	Friendship Trophy.	RM	Clapham
18	<i>Met. & South: District Championship.</i>	M. Finn		13	Open Event.	RA/R10r	Woodspring
18	<i>Eastern District Championship.</i>	R10r	Chiltern	13	Ciba Geigy Trophy.	RM	Etherow
18	Open Event.	RM	Chelmsford	13	Jack Roberts Trophy	'A'	Fleetwood
24	Open Event.	RA	Fleetwood	19/20	<i>MYA Champions Cup.</i>	RM	Chelmsford
24/25/26	<i>MYA National Championship.</i>	36r	Birkenhead	20	Open Event.	R36r	Oxford
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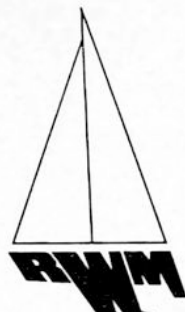
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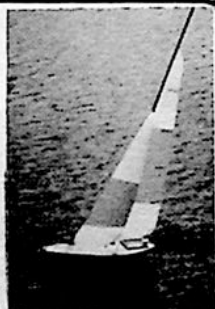
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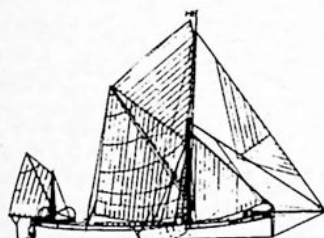
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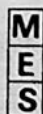
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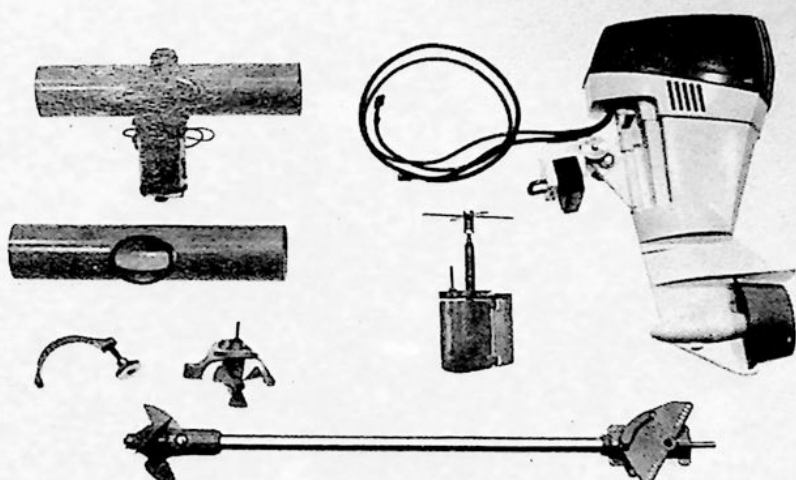
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Illustrated left are the four latest products from MARX LUDER. All these items have been designed to enhance the performance of your model whilst also adding practical realism to the working features.

The **NEPTUN 100** Outboard is a powerful 12 volt motor for medium size sports and racing boats. Features include adjustable mounting bracket to optimise thrust angle; direct steering for superb manoeuvrability and a high efficiency Kort Nozzle with a 40mm low pitch 4-blade prop as standard, plus three 50mm 3-blade props (low, medium and high pitch) allowing you to select the prop best suited to your model. Price £24.95

The **VARIO-PROPELLER 50** allows the pitch of the prop blade to be varied infinitely between -45° to +45° by remote control and in clockwise or counter-clockwise directions. Construction features include 4mm diameter rust-resistant Nirosta stainless steel shaft with three permanently lubricated bearings; packing ring seals at each end; ball bearings incorporated to absorb propeller thrust; steering bellcrank and removable 3-bladed 50mm diameter prop. Length overall 340mm. Price £13.95

The **BECKER RUDDER** is an entirely new idea in model rudder design, incorporating a trailing edge which pivots up to 45°. By redirecting the thrust from the prop off this angled trailing edge rudder response is dramatically increased allowing 'turn-on-a-sixpence' manoeuvres to be made. Price £3.95

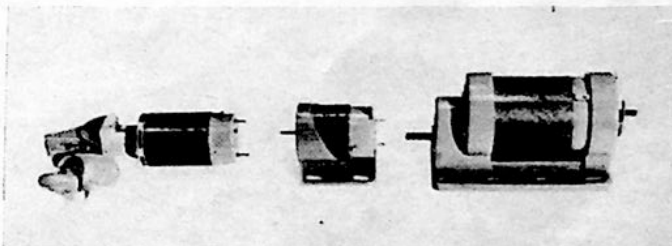
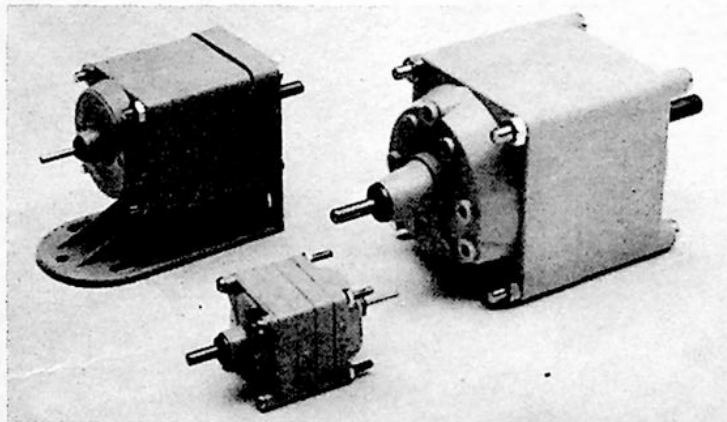
The **BOW THRUSTER** is an ideal accessory for scale enthusiasts. A 3-bladed prop is enclosed in a 150mm length tube (diameter 36mm) which splits open for easy access to the prop unit for maintenance, etc. The drive shaft from the prop unit has 2 sintered bearings and exits through a watertight seal in the top of the tube for connecting to the appropriate motor/coupling/pulley system. Price £9.95

MARX MOTORS

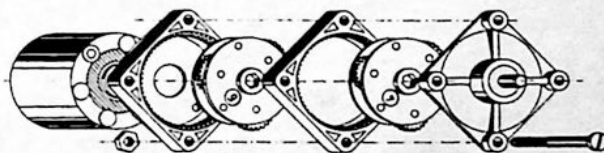
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Besides the latest specialist products shown above **MARX LUDER** are world famous for their extensive and unrivalled range of top quality DC electric motors, all developed specifically to meet modelling requirements. Specification includes precision ground commutators for high speed and long service life; armatures dynamically balanced as standard; motor windings impregnated and baked onto a sintered resin insulated body; hardened, ground and polished shafts running in sintered metal bearings which are maintenance free and silent running; high coercivity materials used for magnets (no demagnetization) and long lasting brushes. This quality of technical specification is naturally reflected in the high power outputs and high efficiency ratings developed by each motor size from the Milliperm Special up to the competition standard Hectoperm GT500.

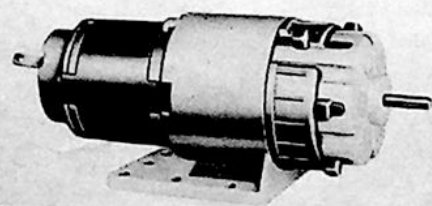
MILLIPERM SPECIAL (6V)	£11.50	HECTOPERM SPECIAL GEARED 2:1 (6V)	£24.40
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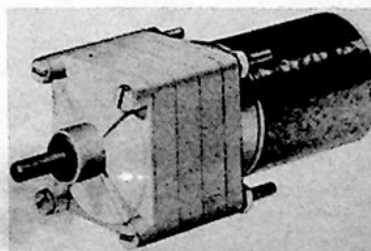
There's nothing to compare with the Marx Luder **PILE GEARBOXES**. Available in three sizes (as photo left) to match virtually ANY size of electric motor. Assembly is in modular form with reduction ratios of 3:1, 4:1, 5:1 and 6:1. Use them in combinations to give virtually ANY REDUCTION GEAR RATIO YOU WANT UP TO 360:1 (or even higher with additional units). ALL **PILE GEARBOXES** are of non-corroding high strength construction, lubricated for life and maintenance-free. Additional stage rings can be used to extend reduction gear ratios if required or stages can be removed for reduced ratios. Also available is an extra strong output stage of 4:1 to be used only in combination with at least one Pile stage. **MINI PILE Complete** £5.75. **PILE Complete** £6.75. **MAXI PILE Complete** £9.75. **PILE 4:1 High Torque Output** £5.25.



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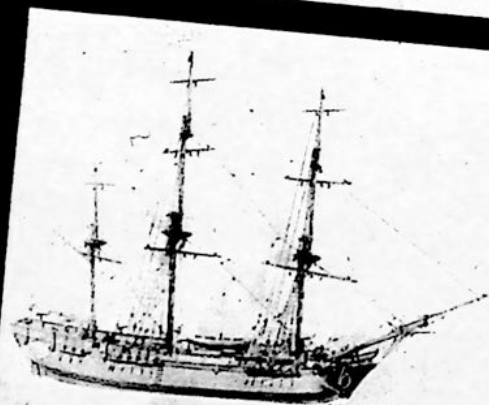
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